United States
Department of
Agriculture

Food and
Nutrition
Service

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WIC INFANT FORMULA REBATE STUDIES

Congressional directives set forth in the Special Supplemental Food Program for Women, Infants, and Children (WIC) Fiscal Year 1991 appropriation language instructed the USDA Food and Nutrition Service (FNS) to conduct two studies. This memorandum transmits copies of the study reports submitted to the Committee on Appropriations and other interested members of Congress.

The directive requested that FNS conduct a study of the cost-effectiveness of various means of procuring infant formula for the WIC Program and report to Congress by May 1991. The study found that three factors, State WIC caseload size, type of contract, and timing of contract negotiations, were the most important factors in determining the amount of rebate received per can of infant formula. The existing system works well and there is little evidence to suggest that additional incentives are needed to increase the cost-effectiveness of infant formula procurement in the WIC Program.

FNS was also instructed to study the procedures used to determine the amounts that infant formula manufacturers are billed for rebates under cost containment systems. The directive instructed USDA to report study findings to Congress no later than 9 months after enactment of the Fiscal Year 1991 appropriation. Separate reviews were conducted by the U.S. General Accounting Office (GAO) and USDA Office of Inspector General (OIG). Neither GAO nor OIG found significant problems with the manner in which formula manufacturers are billed for infant formula rebates. A summary of the GAO and OIG reports, along with copies of the reports were submitted to Congress.

Enclosures

COST-EFFECTIVENESS OF INFANT FORMULA REBATE SYSTEMS IN THE SPECIAL SUPPLEMENTAL FOOD PROGRAM FOR WOMEN, INFANTS, AND CHILDREN (WIC)

United States Department of Agriculture

Food and Nutrition Service

Office of Analysis and Evaluation

May 1991

COST-EFFECTIVENESS OF INFANT FORMULA REBATE SYSTEMS

INTRODUCTION

The report accompanying the Fiscal Year 1991 Agriculture Appropriations Act (P.L. 101-506) instructed USDA to conduct a study of the most cost-effective means for procuring infant formula for the Special Supplemental Food Program for Women, Infants, and Children (WIC). The Committee's request reflects concerns about the impact that any future reductions in infant formula rebate amounts would have on the numbers of participants that the WIC Program can serve. The significant role played by infant formula rebates in recent WIC Program growth motivates the Committee's concern. In Fiscal Year 1988, rebates totaled approximately $30 million. By Fiscal Year 1991, infant formula rebates grew to an estimated $600 million, a level which supports serving an additional 950,000 participants in the WIC Program each month. Rebates have thus supported an increase of over 20 percent in the number of at-risk women, infants and children served by this grant program.

While there has been continual expansion of rebate savings over the past three years, the growth is mostly due to States implementing first-time rebate contracts. In fact, most of the States' average per can rebate levels reported in this study are amounts negotiated in initial contracts.

As rebate contracts expire and are renegotiated there could be changes in their nature. Thirty-seven contracts, covering over three-fourths of all WIC infants, expire between October 1, 1990 and September 30, 1992. Nineteen States will renegotiate contracts before the end of Fiscal Year 1991 and an additional 18 in Fiscal Year 1992. These contract recompetitions and renegotiations underlie the concern of how best to maintain or increase infant formula per can rebate amounts.

The long-term viability of the current rebate system is influenced by the unique relationship between the infant formula market and the WIC Program. The U.S. infant formula market is highly concentrated: six manufacturers account for virtually 100 percent of the infant formula sold in the country and the two largest manufacturers, Ross Labs and Mead Johnson, control over 80 percent of the market between them. The WIC Program represents a significant portion of that market. Infants (up to age one) participating in the WIC Program consume approximately 40-45 percent of all infant formula produced in the United States.

The net cost of infant formula in the WIC Program is less than 40 percent of the retail price. Since the WIC Program is such a large outlet for infant formula and is able to obtain prices well

below the market level, the nature of the rebate systems employed also has serious implications for competitiveness in the infant formula market over the long term and the prices faced by all infant formula consumers.[1] A particular concern is that some rebate arrangements might cause further market concentration. The implications of this are discussed below.

The Committee directed USDA to examine several options: national and regional, sole-source, open-market, competitive, and fixed-price contracts and production of infant formula by public or nonprofit entities and report to Committee in May 1991. In response to that mandate, USDA has examined average rebate amounts under existing State rebate agreements and direct purchase systems in the 51 geographical State agencies. These agencies account for almost 95 percent of the infant population served by WIC.

This report summarizes the current requirements for cost containment systems and describes the existing systems and the associated rebate savings by type. This is followed by a discussion of the factors thought to affect the size of infant formula rebates. These factors include: the size of the State's WIC infant caseload, the type of rebate contract, and the date that the agreement was signed. Next the report examines alternatives to the current system, nationwide rebate systems, regional rebate systems, and public or nonprofit production of infant formula. The report concludes that alternatives to the current rebate system are not warranted at this point.

The analysis presented in this report is solely descriptive for several reasons. The infant formula market does not fit the traditional economic competitive model and its pricing structure is complex. Furthermore, WIC infant formula rebates have only been in effect for a relatively short period--the majority of States have first-time contracts that have yet to expire--making it difficult to capture the dynamic impact of rebates on the infant formula market. This short history also makes it difficult to unravel the interaction of manufacturers' rebate bid offers with differing circumstances and caseload variables at the individual State level. Consequently, the analyses do not support conclusive statements about why rebates are at a given level in a particular State. Instead the conclusions presented in this report apply to the rebate systems in general as national averages and do not necessarily apply to trends in particular States.

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[1] Seven companies currently have WIC infant formula rebate agreements in one or more States: Ross Laboratories, Mead Johnson, Wyeth-Ayerst Laboratories, Carnation Company, Loma Linda, Abbott Laboratories and Rimaco.

CURRENT SYSTEMS

The Child Nutrition and WIC Reauthorization Act of 1989 (P.L. 101-147) implemented in November 1990 changed the rebate system by requiring States to implement a competitive bidding system, or another cost containment system that yields savings equal to or greater than a competitive system. A competitive system is defined as, "[A] procurement process under which the State agency selects the single source offering the lowest price, as determined by the submission of sealed bids, for the product for which bids are sought." States that had contracts in effect on the effective date of P.L. 101-147 are not subject to the requirements of the law until those contracts expire.

Forty-nine of the 51 WIC geographical State agencies, 20 of the 32 Indian Tribal Organizations (ITOs), and all three Territorial State agencies have rebate systems in place. Three State agencies (Mississippi, Vermont, and Ohio) and seven ITOs use alternative delivery systems in which the State agencies purchase infant formula directly from the manufacturers.[2] The remaining five ITOs do not have rebate systems in place because such system were not feasible.[3]

Four types of rebate systems are currently used by the WIC State agencies: competitive sole source; competitive multi-source; open market; and fixed price contracts. Each system is described briefly below. Appendix A lists the State agencies along with the type of system used and the current rebate amounts.

In a **competitive sole source system**, the State agency conducts a competitive procurement and enters into a contract with one infant formula manufacturer who is the sole provider of rebated formula for WIC participants in that State (except in the case of physician-prescribed alternative brands). Under the provisions of P.L. 101-147, all agreements signed after November 10, 1989, must be sole source competitive unless an alternative system produces equal or greater savings, or a waiver is granted. Waivers are permitted only when the alternative system provides savings which are minimally less than the sole source competitive system or when the sole source competitive system would be inefficient.

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[2]Ohio employs a hybrid system that combines direct delivery of the dairy component of the WIC Program (in some areas of the State) with a retail system for the other components of the WIC food package.

[3]The Secretary may waive the requirements in the case of ITOs with fewer than 1,000 participants or where a feasibility study documents that a cost containment system would not be feasible.

Twenty State agencies representing 59 percent of WIC infants currently have competitive sole source rebate systems (see Table 1). The weighted average rebate for these twenty States is $1.58 per 13 ounce can of liquid concentrate formula.[4] Competitive sole source rebates currently range from $.79 to $1.88 per can of formula.

In a **multi-source competitive system** the State agency indicates in a competitive procurement that it will award contracts to the best bidder and to any other bidders within a specified percentage or amount of the best bid.[5] Seven State agencies, serving 9 percent of WIC infants, currently use multi-source competitive systems (see Table 1). The weighted average rebate received by State agencies with this type of system is $1.30 per can of formula. The range of rebates under current competitive multi-source systems is $1.00 to $1.50 per can.

Open market rebate systems are generally non-competitive systems in which the State agency negotiates rebates independently with each formula manufacturer. With this type of system, a State agency can have separate rebate contracts with multiple formula manufacturers and thus provide WIC participants with more choice of infant formula brands. Nineteen State agencies, serving 24 percent of WIC infants, currently have open market rebate systems (see Table 1). Currently, open market system rebates range from $.02 to $1.43 per can. The weighted average rebate for open market systems is $1.10 per can, the lowest average for all systems.[6]

Current law and regulations permit **multi-State systems** in which States join together under a single agreement to obtain infant formula rebates. In fact, P.L. 101-147 requires USDA to provide technical assistance to small States that request assistance to implement multi-State systems.

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[4]Rebate amounts presented (unless otherwise noted) are weighted averages based on information available as of 5/15/91. These figures will differ from the original rebate amount in the contract in many cases because agreements include provisions to adjust rebate levels in response to changes in the wholesale price of infant formula.

[5]In the event that there are no other bidders within the specified range of the best bid, it becomes, in effect, a sole source agreement.

[6]Weighted average rebate values for multi-source and open market agreements were estimated using the proportional national average market shares for all formula manufacturers participating in the respective States.

TABLE 1

RANGE AND WEIGHTED AVERAGE REBATES
BY TYPE OF SYSTEM

Type of Rebate System	Number of States 1/	Range of Rebates Per Can 2/	Average Rebate Per Can 2/	Percent of WIC Caseload 3/
Competitive Sole Source	20	$ 0.69 - 1.88	$ 1.58	59
Competitive Multi-Source	7	$ 1.00 - 1.50	$ 1.30	9
Competitive Multi-State	3	$ 1.63	$ 1.63	2
Open Market	19	$ 0.02 - 1.43	$ 1.10	23
Fixed Price Procurement	2	N/A	N/A	3

1/ Geographic State agencies only.
2/ Weighted average rebates
3/ Percentage of total WIC caseload, does not sum to 100 percent due to exclusion of Puerto Rico and Indian agencies.

One multi-State system is currently in place. Three State agencies--Delaware, Maryland, and the District of Columbia--joined together in a competitive sole source rebate contract. Although these State agencies contain only 2 percent of all WIC infants, they were able to obtain a per can rebate of $1.63, above the national average for sole source competitive rebates.

A more recent attempt at a multi-State system, however, was unsuccessful, although a second round of bids is currently under consideration. In January 1991, seven northeastern WIC State agencies--Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont--issued a joint request for bids on infant formula rebates. The highest bid received was $1.42 per can, less than the current contracted rebate amounts in four of the seven States, and 11 percent lower than the current weighted average rebate of $1.60 per can contained in the current contracts for the seven States. It is not known, however, whether independent State competitive awards conducted at the same time would have yielded individual State rebates as high as the initial contracts negotiated by those seven States. The $1.42 bid, however, would have resulted in a net loss of $10 million in rebates across the seven States compared to existing State rebate contracts. Some States would have increased rebates and some States would have lost rebates. New York, with the largest caseload, faced substantially lower rebates than in their current rebate contracts. Consequently, the States rejected all of the bids.

Five of the seven State agencies have joined together to solicit a second bid, with some modifications to the original bidding requirements. Notably, the largest State in the region, New York chose not to participate in the second attempt. The State of Vermont also elected not to participate. The second solicitation attempt is still ongoing.

In a **fixed price procurement system** infant formula is purchased directly from manufacturers at a discounted fixed price. The formula is delivered to the WIC State agency or authorized agent(s), which in turn distributes it to participants. Three States--Mississippi, Ohio, and Vermont--and seven ITOs currently use this method to procure infant formula. USDA also uses the fixed price method to purchase formula for the Commodity Supplemental Food Program (CSFP).

On average, the price of infant formula purchased at a fixed price is less than the net price of formula purchased at retail with a rebate. For instance, Mississippi pays $.51 per can and Vermont pays $.58 per can, whereas the current national average net price under a rebate system is about $.80. USDA is currently paying $.47-.77 per can of formula for CSFP depending upon the quantity of formula ordered. It should be noted that these prices do not reflect the added costs of stocking and delivering

the formula to program participants.

P.L. 100-460 required all WIC State agencies to examine a range of cost reduction measures including fixed price procurement for direct distribution or home delivery. Most States found a direct procurement system to be infeasible because of the costs associated with administering the program or because of the impact it had on participants. A number of States do have rebate contracts with net per can formula costs below the per can price of fixed cost procurements, even without accounting for the additional distribution costs of fixed procurement.

FACTORS AFFECTING THE LEVEL OF REBATES

The analysis examined existing rebate agreements in light of a number of factors hypothesized to affect the level of rebate amounts. The factors thought to be most important include: 1) the size of the WIC population in a State; 2) the type of agreement and 3) the date the agreement was signed (Appendix A shows average rebate by State, type of system and agreement date). These factors are strongly interrelated and the dynamic nature of WIC rebates did not permit the analysis to disaggregate the extent to which each of the factors contribute to the level of rebates. However, some general conclusions can be drawn.

Size of the WIC Population

Larger States, as measured by the size of their WIC caseloads, have higher per can rebates. The analysis divided States into three categories based on their WIC caseload size, less than 50,000 participants (small), 50,000 to 150,000 participants (mid-sized) and over 150,000 participants (large) (see Table 2). The average rebate per can of formula for the nine States with more than 150,000 WIC participants ($1.58) was 44 percent higher than the average rebate in 23 States with fewer than 50,000 participants ($1.10). The difference was more pronounced when Delaware and the District of Columbia were excluded from the small State category because of their participation in a multi-State agreement with Maryland. (That three State bid produced a caseload equivalent to a single State participation level of 86,000).

Type of Agreement

The type of rebate contract, sole source competitive, multi-source competitive, or open market, also appears to be related to the level of rebate bid by formula manufacturers. On average, States with competitive sole source agreements obtained the largest per can rebates than either States with competitive

TABLE 2
WEIGHTED AVERAGE REBATE AMOUNTS
BY SIZE OF WIC CASELOAD

STATE AGENCY	WEIGHTED AVERAGE REBATE	EFFECTIVE CONTRACT DATE	CONTRACT EXPIRATION DATE	CONTRACT TYPE	CURRENT PARTICI-PATION	WEIGHTED AVERAGE BY SIZE
BELOW 50,000 WIC Participants						$1.10
ALASKA	$1.07	2/ 1/91	1/31/1993	CM	7,609	
WYOMING	$1.09	10/ 1/87	3/31/1993	OM	8,748	
DELAWARE	$1.63	5/ 1/89	4/30/1992	C	11,532	
D.C.	$1.63	5/ 1/89	4/30/1992	C	14,346	
HAWAII	$.95	3/ 1/91	2/28/1991	OM	14,652	
NORTH DAKOTA	$1.15	7/ 1/89	6/30/1991	OM	14,668	
RHODE ISLAND	$1.53	7/ 1/89	9/30/1991	C	15,252	
MONTANA	$.79	7/ 1/90	6/30/1991	C	15,443	
NEW HAMPSHIRE	$1.15	7/ 1/89	7/15/1991	OM	15,489	
NEVADA	$.87	10/ 1/90	9/30/1992	OM	15,531	
SOUTH DAKOTA	$1.26	10/ 1/88	9/30/1993	OM	17,363	
MAINE	$1.15	6/ 1/89	5/31/1991	OM	22,176	
IDAHO	$1.11	10/ 1/89	9/30/1992	OM	23,049	
NEBRASKA	$1.11	10/ 1/89	9/30/1991	OM	23,379	
NEW MEXICO	$1.11	10/ 1/89	9/30/1991	OM	31,557	
WEST VIRGINIA	$1.06	10/ 1/90	9/30/1992	CM	36,275	
UTAH	$.39	10/ 1/89	9/30/1992	OM	37,132	
KANSAS	$1.35	4/ 1/89	3/31/1992	CM	39,332	
OKLAHOMA	$.93	5/ 1/89	4/30/1992	C	43,273	
ARIZONA	$1.11	10/ 1/90	9/30/1993	CM	44,446	
OREGON	$1.22	12/ 1/90	11/30/1992	C	47,220	
IOWA	$1.10	10/ 1/90	9/30/1992	CM	47,431	
COLORADO	$1.18	10/ 1/88	9/30/1992	CM	47,791	
50,000 - 150,000 WIC Participants						$1.35
CONNECTICUT	$1.46	5/ 1/90	4/30/1993	C	52,583	
ARKANSAS	$1.36	10/ 1/88	9/30/1991	OM	58,135	
WASHINGTON	$1.14	5/ 1/89	6/30/1992	OM	59,459	
MARYLAND	$1.63	5/ 1/89	4/30/1992	C	59,957	
WISCONSIN	$1.26	5/ 1/90	4/30/1993	C	67,359	
MASSACHUSETTS	$1.60	5/ 1/89	6/30/1991	C	75,658	
MINNESOTA	$1.71	10/ 1/88	6/30/1991	C	76,125	
MISSOURI	$1.26	7/ 1/88	9/25/1991	OM	84,166	
VIRGINIA	$1.26	3/ 1/89	2/29/1992	OM	88,798	
KENTUCKY	$.96	7/ 1/90	6/30/1991	C	91,854	
SOUTH CAROLINA	$.58	4/ 1/89	9/30/1993	OM	94,526	
NEW JERSEY	$1.65	10/ 1/88	9/30/1991	C	98,916	
ALABAMA	$1.71	8/ 1/88	9/30/1991	C	101,865	
TENNESSEE	$1.63	3/ 1/89	2/29/1992	C	106,505	
INDIANA	$1.32	2/ 1/91	1/31/1993	C	108,158	
LOUISIANA	$1.26	3/ 1/89	9/30/1993	OM	118,663	
NORTH CAROLINA	$1.26	7/ 1/88	9/30/1991	OM	133,574	
150,000+ WIC Participants						$1.58
MICHIGAN	$1.65	11/ 1/89	9/30/1992	C	155,723	
GEORGIA	$1.51	10/ 1/88	9/30/1991	C	163,866	
PENNSYLVANIA	$1.62	10/ 1/88	9/30/1993	C	181,099	
FLORIDA	$1.72	2/ 1/91	1/31/1994	C	188,350	
OHIO	$1.08	10/ 1/89	9/30/1993	OM	196,202	
ILLINOIS	$1.45	2/ 1/89	1/31/1992	CM	201,576	
NEW YORK	$1.67	2/ 1/89	1/31/1992	C	334,200	
TEXAS	$1.37	10/ 1/90	9/30/1992	C	342,174	
CALIFORNIA	$1.88	1/ 1/89	12/31/1991	C	439,712	

KEY: C - competitive sole source
CM - competitive multi-source
OM - open market

NOTE: Weighted average rebates for contracts as of 5/15/91.

multi-source or open market systems (See Table 3). This was true for States with large, mid-sized and small WIC caseloads. The smallest per can rebates were obtained under open market agreements, with competitive multi-source agreements producing rebate levels between the two. Table 3 shows the average per can rebate by type of system as well as the range of per can rebates. The weighted average rebate for open market agreements was $1.10 per can compared to $1.30 for competitive multi-source agreements and $1.58 for competitive sole source agreements.

The type of rebate contract appears to be interrelated with State size, however. Two-thirds of the States with caseload over 50,000 have competitive sole source rebate agreements. Seven of the nine States with more than 150,000 participants had competitive sole source agreements. These seven States--which together comprise nearly 40 percent of the national caseload--obtained an average rebate of $1.65. States with small caseloads were more likely to have open market agreements. Eleven of the 19 States with open market agreements had fewer than 50,000 WIC participants.

Date of Contract Award

The type of agreement and size of the WIC caseload within a State are not the sole determining factor in the level of rebates offered. It also appears that the timing of an agreement may affect the level of rebate. Table 4 shows weighted average rebate levels by calendar year. Contracted rebate amounts varied by only nominal amounts across three of the four calendar years: Calendar Year 1988 ($1.50 per can), Calendar Year 1989 ($1.476 per can), and Calendar Year 1991 ($1.53 per can). Contracts negotiated during Calendar Year 1990, however, received substantially lower per can rebates (an average of $1.19).

The conservative bids offered in 1990 may have been due, in part, to the uncertainty over the final provisions of P.L. 101-147 and how they would affect the infant formula market. Average rebates awarded in 1990 were lower than previous years and 1991 despite the fact that 10 out of 11 contracts were awarded competitively, including Texas, which has the second largest WIC caseload in the U.S.[7] Texas' sole source competitive agreement was 20 percent lower than an agreement signed only 4 months later by Florida, a State with 150,000 fewer WIC participants. Seven States received sole source competitive bids of less that $1.00 per can in 1990, and three States signed multi-source agreements because the bids for these contracts exceeded the bids for sole source. Prior to 1990, not a single sole source agreement for less than $1.00 had been signed.

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[7] Eighteen out of 34 agreements were awarded competitively during calendar year 1988 and 1989.

TABLE 3
WEIGHTED AVERAGE REBATE AMOUNTS
BY TYPE OF CONTRACT

STATE AGENCY	WEIGHTED AVERAGE REBATE	EFFECTIVE CONTRACT DATE	CONTRACT EXPIRATION DATE	CONTRACT TYPE	CURRENT PARTICI-TATION	WEIGHTED AVERAGE BY TYPE
Sole Source Competitive						$1.58
DELAWARE	$1.63	5/ 1/89	4/30/1992	C	11,532	
D.C.	$1.63	5/ 1/89	4/30/1992	C	14,346	
RHODE ISLAND	$1.53	7/ 1/89	9/30/1991	C	15,252	
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WISCONSIN	$1.26	5/ 1/90	4/30/1993	C	67,359	
MASSACHUSETTS	$1.60	5/ 1/89	6/30/1991	C	75,658	
MINNESOTA	$1.71	10/ 1/88	6/30/1991	C	76,125	
KENTUCKY	$.96	7/ 1/90	6/30/1991	C	91,854	
NEW JERSEY	$1.65	10/ 1/88	9/30/1991	C	98,916	
ALABAMA	$1.71	8/ 1/88	9/30/1991	C	101,865	
TENNESSEE	$1.63	3/ 1/89	2/29/1992	C	106,505	
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MICHIGAN	$1.65	11/ 1/89	9/30/1992	C	155,723	
GEORGIA	$1.51	10/ 1/88	9/30/1991	C	163,866	
PENNSYLVANIA	$1.62	10/ 1/88	9/30/1993	C	181,099	
FLORIDA	$1.72	2/ 1/91	1/31/1994	C	188,350	
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Competitive Multi-Source						$1.30
ALASKA	$1.07	2/ 1/91	1/31/1993	CM	7,609	
WEST VIRGINIA	$1.06	10/ 1/90	9/30/1992	CM	36,275	
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COLORADO	$1.18	10/ 1/88	9/30/1992	CM	47,791	
ILLINOIS	$1.45	2/ 1/89	1/31/1992	CM	201,576	
Open Market						$1.10
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HAWAII	$.95	3/ 1/91	2/28/1991	OM	14,652	
NORTH DAKOTA	$1.15	7/ 1/89	6/30/1991	OM	14,668	
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WASHINGTON	$1.14	5/ 1/89	6/30/1992	OM	59,459	
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OHIO	$1.08	10/ 1/89	9/30/1993	OM	196,202	

KEY: C - competitive sole source
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NOTE: Weighted average rebates for contracts as of 5/15/91.

TABLE 4

WEIGHTED AVERAGE REBATE AMOUNTS
BY YEAR OF CONTRACT AWARD

YEAR AWARDED	STATE AGENCY	WEIGHTED AVERAGE REBATE	EFFECTIVE CONTRACT DATE	CONTRACT EXPIRATION DATE	CONTRACT TYPE	CURRENT PARTICIPATION	WEIGHTED AVERAGE BY YEAR
1987	WYOMING	$1.09	10/ 1/87	3/31/1993	OM	8,748	$1.09
1988	MISSOURI	$1.26	7/ 1/88	9/25/1991	OM	84,166	$1.50
	NORTH CAROLINA	$1.26	7/ 1/88	9/30/1991	OM	133,574	
	ALABAMA	$1.71	8/ 1/88	9/30/1991	C	101,865	
	COLORADO	$1.18	10/ 1/88	9/30/1992	CM	47,791	
	SOUTH DAKOTA	$1.26	10/ 1/88	9/30/1993	OM	17,363	
	MINNESOTA	$1.71	10/ 1/88	6/30/1991	C	76,125	
	NEW JERSEY	$1.65	10/ 1/88	9/30/1991	C	98,916	
	ARKANSAS	$1.36	10/ 1/88	9/30/1991	OM	58,135	
	GEORGIA	$1.51	10/ 1/88	9/30/1991	C	163,866	
	PENNSYLVANIA	$1.62	10/ 1/88	9/30/1993	C	181,099	
1989	CALIFORNIA	$1.88	1/ 1/89	12/31/1991	C	439,712	$1.47
	NEW YORK	$1.67	2/ 1/89	1/31/1992	C	334,200	
	ILLINOIS	$1.45	2/ 1/89	1/31/1992	CM	201,576	
	TENNESSEE	$1.63	3/ 1/89	2/29/1992	C	106,505	
	VIRGINIA	$1.26	3/ 1/89	2/29/1992	OM	88,798	
	LOUISIANA	$1.26	3/ 1/89	9/30/1993	OM	118,663	
	KANSAS	$1.35	4/ 1/89	3/31/1992	CM	39,332	
	SOUTH CAROLINA	$.58	4/ 1/89	9/30/1993	OM	94,526	
	DELAWARE	$1.63	5/ 1/89	4/30/1992	C	11,532	
	D.C.	$1.63	5/ 1/89	4/30/1992	C	14,346	
	MARYLAND	$1.63	5/ 1/89	4/30/1992	C	59,957	
	MASSACHUSETTS	$1.60	5/ 1/89	6/30/1991	C	75,658	
	WASHINGTON	$1.14	5/ 1/89	6/30/1992	OM	59,459	
	MAINE	$1.15	6/ 1/89	5/31/1991	OM	22,176	
	RHODE ISLAND	$1.53	7/ 1/89	9/30/1991	C	15,252	
	NORTH DAKOTA	$1.15	7/ 1/89	6/30/1991	OM	14,668	
	NEW HAMPSHIRE	$1.15	7/ 1/89	7/15/1991	OM	15,489	
	IDAHO	$1.11	10/ 1/89	9/30/1992	OM	23,049	
	NEBRASKA	$1.11	10/ 1/89	9/30/1991	OM	23,379	
	NEW MEXICO	$1.11	10/ 1/89	9/30/1991	OM	31,557	
	UTAH	$.39	10/ 1/89	9/30/1992	OM	37,132	
	OHIO	$1.08	10/ 1/89	9/30/1993	OM	196,202	
	MICHIGAN	$1.65	11/ 1/89	9/30/1992	C	155,723	
1990	CONNECTICUT	$1.46	5/ 1/90	4/30/1993	C	52,583	$1.19
	WISCONSIN	$1.26	5/ 1/90	4/30/1993	C	67,359	
	OKLAHOMA	$.93	5/ 1/90	4/30/1992	C	43,273	
	KENTUCKY	$.96	7/ 1/90	6/30/1991	C	91,854	
	WEST VIRGINIA	$1.06	10/ 1/90	9/30/1992	CM	36,275	
	ARIZONA	$1.11	10/ 1/90	9/30/1993	CM	44,446	
	IOWA	$1.10	10/ 1/90	9/30/1992	CM	47,431	
	NEVADA	$.87	10/ 1/90	9/30/1992	OM	15,531	
	TEXAS	$1.37	10/ 1/90	9/30/1992	C	342,174	
	OREGON	$1.22	12/ 1/90	11/30/1992	C	47,220	
1991	ALASKA	$1.07	2/ 1/91	1/31/1993	CM	7,609	$1.53
	INDIANA	$1.32	2/ 1/91	1/31/1993	C	108,158	
	FLORIDA	$1.72	2/ 1/91	1/31/1994	C	188,350	
	HAWAII	$.95	3/ 1/91	2/28/1991	OM	14,652	

KEY: C - competitive sole source
CM - competitive multi-source
OM - open market

NOTE: Weighted average rebates for contracts awarded as of 5/15/91.

RENEGOTIATED CONTRACTS

Between March 15, 1990 and May 15, 1991, 15 States renegotiated their infant formula agreements (see Table 5). Eight of the States maintained the same type of contract, 3 States moved from open market to sole source contracts, two States shifted from open market to multi-source competitive systems and one State shifted from sole-source competitive to open market. All the States that awarded multi-source or open market contracts solicited and received lower bids for sole source competitive contracts. As noted previously, many of these contracts were negotiated just prior to the passage and implementation of P.L. 101-147. Since the effective date of the legislation four contracts have been awarded: 3 competitive sole source and 1 competitive multi-source.

IMPLICATIONS FOR FUTURE REBATE LEVELS UNDER CURRENT LAW

Predictions about future rebate levels in the WIC Program are highly speculative at best even though some patterns emerge. The provisions of P.L. 101-147 may reduce the number of open market agreements. Although open market systems have produced the lowest average rebates historically, recent agreements do not clearly indicate that changing to a competitive system will always result in a higher rebate bid for an individual State. Both West Virginia and Nevada received higher bids for open market agreements than for sole source agreements.

The number of competitive multi-source contracts is likely to increase. When States solicit bids on alternatives to sole source contract, some manufacturers either bid only on the alternative system (multi-source or open market), or offer sole source competitive bids below the level bid on alternative agreements. This has occurred in 6 States since August 1990.

Infant formula contracts continue to offer higher rebates to larger State agencies, while offering smaller rebates to medium and small geographic States (and Indian State agencies). This indicates that large States should be able to maintain high rebates under sole source competitive or multi-source systems.

Multi-State competitive sole source or multi-source contracts offer some opportunities for increased rebate savings. However, the limited experience to date indicates that multi-State agreements can dilute the market power of large States. As a result, large States may be reluctant to enter into multi-State agreements because of the possibility of reduced net rebates to the State. Multi-State agreements may be more likely to result in increased rebates when they combine small geographic States that correspond with existing infant formula marketing areas. The Maryland-District of Columbia-Delaware agreement fits this model.

TABLE 5

SUMMARY OF MOST RECENT REBATE CONTRACT ACTIVITY
PERIOD OF MARCH 15, 1990 - MAY 15, 1991

STATE AGENCY	CONTRACT EFFECTIVE DATE	PRIOR CONTRACT TYPE	CURRENT CONTRACT TYPE
CONNECTICUT	5/1/90	OPEN MARKET	COMPETITIVE SOLE SOURCE
OKLAHOMA	5/1/90	COMPETITIVE SOLE SOURCE	COMPETITIVE SOLE SOURCE
WISCONSIN	5/1/90	OPEN MARKET	COMPETITIVE SOLE SOURCE
KENTUCKY	7/1/90	OPEN MARKET	COMPETITIVE SOLE SOURCE
MONTANA	7/1/90	OPEN MARKET	COMPETITIVE SOLE SOURCE
ARIZONA	10/1/90	COMPETITIVE MULTI-SOURCE	COMPETITIVE MULTI-SOURCE
COLORADO	10/1/90	COMPETITIVE MULTI-SOURCE	COMPETITIVE MULTI-SOURCE
NEVADA	10/1/90	COMPETITIVE SOLE SOURCE	OPEN MARKET
IOWA	10/1/90	OPEN MARKET	COMPETITIVE MULTI-SOURCE
TEXAS	10/1/90	COMPETITIVE SOLE SOURCE	COMPETITIVE SOLE SOURCE
WEST VIRGINIA	10/1/90	OPEN MARKET	OPEN MARKET
OREGON	12/1/90	COMPETITIVE SOLE SOURCE	COMPETITIVE SOLE SOURCE
ALASKA	2/1/91	OPEN MARKET	COMPETITIVE MULTI-SOURCE
FLORIDA	2/1/91	COMPETITIVE SOLE SOURCE	COMPETITIVE SOLE SOURCE
INDIANA	2/1/91	COMPETITIVE SOLE SOURCE	COMPETITIVE SOLE SOURCE

While multi-State systems have the potential to yield higher per can rebates, it should be noted that they are very complex to develop and administer. The solicitation process must comply with procurement laws, regulations, and administrative requirements of each participating State. As a result, multi-State agreements would need to provide significant additional savings in order to justify the additional administrative workload.

ALTERNATIVE COST CONTAINMENT SYSTEMS

The Appropriations Report required USDA to examine two alternatives to the current cost containment provisions, a national rebate system and production of infant formula by public or nonprofit entities.

On the face of it, both alternatives have the appeal of permitting USDA to use its large market share to obtain concessionary prices from manufacturers or to produce formula outright. A national rebate system might also reduce overall administrative burden for States by eliminating duplicative administrative procedures across State agencies. Federal administrative costs, on the other hand, would increase to absorb the increased responsibilities. Smaller States and Indian Tribal Organizations, in theory, would benefit most through expected higher average rebates.

The multi-State bidding experience of the seven States in the FNS Northeast Region, however, indicates that combining States can dilute the market power of large States, resulting in lower, rather than higher net rebates across States. Whereas infant formula companies have bid high rebates for sole source rights in large States, they have shown less interest in States with smaller caseloads or in multi-State agreements.[8]

Figure 1 shows weighted average State rebates for States broken out by USDA Food and Nutrition Service (FNS) regions. This map highlights the wide variation in rebate amounts among States within the same geographic region. For example, in the Southeast Region (SERO), rebates range from $.58 in South Carolina to $1.72 in Florida, a difference of $1.14 per can. This wide range makes region-wide contracts less feasible given the indications that region-wide contracts can reduce the market power of large States. It is important to note that the FNS Northeast Region, which had a difference of $.53 per can between high and low

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[8]States with large WIC populations tend to have one or more large urban areas. It is hypothesized that the desire to maintain market share among both WIC and non-WIC infants makes it feasible for infant formula manufacturers to offer large rebates in these States.

rebate amounts, was unable to negotiate a successful region-wide bid because of the decrease in rebate to the largest State in the region, New York.

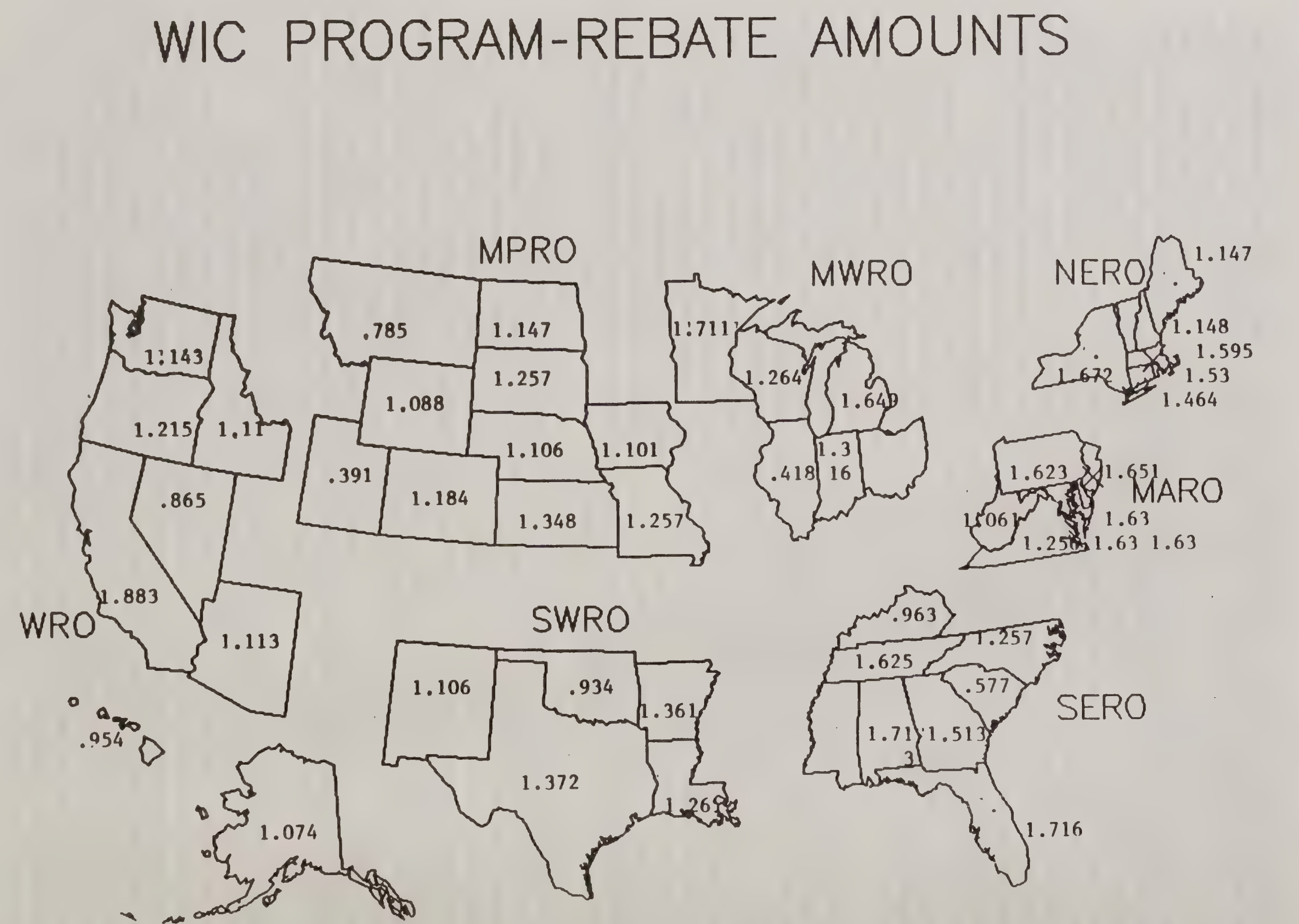
National or mandated regional sole source contracts could lead to further market concentration and ultimately reduce the level of competition in the market. Currently the inability of new or smaller manufacturers to establish market shares in both the WIC and non-WIC market places constitutes a major barrier to entry into the infant formula market. A national WIC rebate contract or a number of large regional agreements would likely increase the dominance of the two largest manufacturers because only they have the necessary production facilities, product line, and distribution system to accommodate a nation-wide infant formula contract. National or Regional WIC contracts could limit competition and thus result in increased costs not only for the WIC Program, but also for non-WIC consumers of infant formula.

A national rebate system would also increase administrative complexity and complicate existing Federal/State relationships. For example, it is inappropriate for the Federal government to enter into legally binding arrangements on behalf of States which could conflict with individual State procurement laws and regulations. States would lose their autonomy to choose and implement the type of system they deem most suitable for their individual needs and prevailing community preferences. In addition, while State administrative costs would decline, USDA would require additional staff and funds to solicit, procure, and manage a national rebate contract.

USDA believes the production of infant formula by public or non-profit entities is an infeasible alternative to the current infant formula cost containment system. Infant formula must be produced under stringent quality control conditions in compliance with provisions of P.L. 96-359, the Infant Formula Act of 1980. A public or non-profit entity would have to expend considerable resources to build, equip, and staff an infant formula production plant and develop a nation-wide logistical system to distribute the formula and monitor inventory. In the short run this would require tremendous expenditures without any assurances that it would produce savings sufficient to cover the initial investment.

Such a system would place a public sector entity in the unprecedented role of manufacturing a consumer good which is already available in the private sector market and also directly competing with private manufacturers. A non-profit entity whose sole source access to WIC Program participants guarantees a 40-45 percent market share represents a massive market intervention that would significantly affect the seven formula manufacturers and non-WIC formula consumers in ways that are difficult to predict. Because of these reasons, it is not in the best interest of public or non-profit entities to produce infant formula for Federal nutrition programs.

FIGURE 1


WIC PROGRAM-REBATE AMOUNTS
MPRO
MWRO
NERO
MARO
WRO
SWRO
SERO
1.147
1.148
1.595
1.53
1.464
1.672
1:711
1.264
.418
1.3
16
1.623
1.651
1.63
1.63 1.63
.785
1.147
1.257
1.088
1.106
1.101
.391
1.184
1.348
1.257
1:143
1.215
1.11
.865
1.883
1.113
.954
1.074
1.106
.934
1.361
1.372
.963
1.257
1.625
.577
1.71
3
1.513
1.716

CONCLUSIONS

The current infant formula rebate system has generated large cost savings that have enabled the WIC Program to increase participation by over 20 percent since rebates were instituted in 1988. Overall, WIC rebates have reduced the cost of infant formula to less than 40 percent of the average retail price. The largest savings have been achieved by large States operating competitive sole source rebate systems. Lesser, but significant savings have been achieved by smaller States operating competitive multi-source or open market contracts. Full implementation of P.L. 101-147 will likely lead to fewer open market contracts. There are no clear indications, however, that converting open market agreements to competitive agreements for small States will guarantee increased rebate savings.

A key factor in achieving high per can rebates appears to be the size of the WIC caseload. Large States have shown a continuous ability to obtain large rebates through sole source agreements, while formula manufacturers have shown a reluctance to bid on sole source contracts for small- or mid-sized States, or bid higher rebates for alternative multi-source systems.

Multi-State agreements offer some possibilities for increased savings when small case-load States solicit combined bids. Maryland, Delaware and the District of Columbia, three State agencies that share a common market catchment area, were able to obtain a per can rebate above the national average for competitive sole source agreements. However, the limited experience with region-wide contracts indicates that the market power of large case-load States may not translate region-wide. Since the region-wide effort may diminish the market power of large States, it is questionable whether this model is cost effective.

Two alternatives to the current system, nationwide agreements or production of formula by public or non-profit entities are not feasible at this point. Nationwide agreements would encounter the same problems as regional agreements, only to a greater degree, and with the added complication of Federal-State authority conflicting. Production of formula would be very expensive to initiate, might not produce any long-term savings, and would have unpredictable effects on the market. Both alternatives would likely decrease competition in a market with significant existing barriers to entry and a market concentration of over 80 percent among two manufacturers.

The current rebate system is fundamentally sound. The evidence to date indicates that State caseload size, rebate contract type and timing of contract competition and negotiation all play important roles in determining individual State rebate amounts. However, the data do not indicate that specific rebate contract

types will guarantee individual States a certain level rebate. Fully implemented, the provisions of P.L. 101-147, including the incentive for multi-State bids, are likely to maintain the current status. Additional modifications to the system are not warranted at this point.

Appendix A

WIC INFANT FORMULA REBATES

REBATE CONTRACT SUMMARY - Contracts awarded as of 5/15/91

STATE AGENCY	CURRENT REBATE	FORMULA COMPANY	EFFECTIVE CONTRACT DATE	CONTRACT EXPIRATION DATE	CONTRACT TYPE
ALABAMA	1.713	R	8/ 1/88	9/30/1991	C
ALASKA	$1.19	R	2/ 1/91	1/31/1993	CM
ALASKA	$1.00	MJ	2/ 1/91	1/31/1993	CM
ARIZONA	$1.19	R	10/ 1/90	9/30/1993	CM
ARIZONA	$1.00	MJ	10/ 1/90	9/30/1993	CM
ARKANSAS	$1.43	R	10/ 1/88	9/30/1991	OM
ARKANSAS	$1.25	MJ	10/ 1/88	9/30/1991	OM
CALIFORNIA	$1.88	R	1/ 1/89	12/31/1991	C
COLORADO	$1.22	R	10/ 1/88	9/30/1992	CM
COLORADO	$1.14	MJ	10/ 1/88	9/30/1992	CM
CONNECTICUT	$1.46	W	5/ 1/90	4/30/1993	C
DELAWARE	$1.63	MJ	5/ 1/89	4/30/1992	C
D.C.	$1.63	MJ	5/ 1/89	4/30/1992	C
FLORIDA	$1.72	R	2/ 1/91	1/31/1994	C
GEORGIA	$1.51	MJ	10/ 1/88	9/30/1991	C
HAWAII	$1.18	C	3/ 1/91	2/28/1991	OM
HAWAII	$1.11	MJ	3/ 1/91	2/28/1991	OM
HAWAII	$.82	R	4/ 1/90	4/30/1991	OM
IDAHO	$1.10	MJ	10/ 1/89	9/30/1992	OM
IDAHO	$1.11	R	10/ 1/89	9/30/1992	OM
ILLINOIS	$1.50	R	2/ 1/89	1/31/1992	CM
ILLINOIS	$1.37	MJ	2/ 1/89	1/31/1992	CM
INDIANA	$1.32	MJ	2/ 1/91	1/31/1993	C
IOWA	$1.17	R	10/ 1/90	9/30/1992	CM
IOWA	$1.00	MJ	10/ 1/90	9/30/1992	CM
KANSAS	$1.31	MJ	4/ 1/89	3/31/1992	CM
KANSAS	$1.37	R	4/ 1/89	3/31/1992	CM
KENTUCKY	$.96	R	7/ 1/90	6/30/1991	C
LOUISIANA	$1.36	R	3/ 1/89	9/30/1993	OM
LOUISIANA	$1.10	MJ	3/ 1/89	9/30/1993	OM
MAINE	$1.18	R	6/ 1/89	5/31/1991	OM
MAINE	$1.10	MJ	6/ 1/89	5/31/1991	OM
MARYLAND	$1.63	MJ	5/ 1/89	4/30/1992	C
MASSACHUSETTS	$1.60	MJ	5/ 1/89	6/30/1991	C
MICHIGAN	$1.65	MJ	11/ 1/89	9/30/1992	C
MINNESOTA	$1.71	R	10/ 1/88	6/30/1991	C
MISSISSIPPI			DIRECT DISTRIBUTION		
MISSOURI	$1.36	R	7/ 1/88	9/25/1991	OM
MISSOURI	$1.10	MJ	7/ 1/88	9/25/1991	OM
MONTANA	$.79	W	7/ 1/90	6/30/1991	C
NEBRASKA	$1.10	MJ	10/ 1/89	9/30/1991	OM
NEBRASKA	$1.11	R	10/ 1/89	9/30/1991	OM
NEVADA	$.92	R	10/ 1/90	9/30/1992	OM
NEVADA	$1.00	MJ	10/ 1/90	9/30/1992	OM
NEVADA	$.02	W	10/ 1/90	9/30/1992	OM
NEVADA	$1.07	C	10/ 1/90	9/30/1992	OM
NEVADA	$.50	LL	10/ 1/90	9/30/1992	OM
NEW HAMPSHIRE	$1.18	R	7/ 1/89	7/15/1991	OM
NEW HAMPSHIRE	$1.10	MJ	7/ 1/89	9/30/1991	OM
NEW JERSEY	$1.65	R	10/ 1/88	9/30/1991	C
NEW MEXICO	$1.11	R	10/ 1/89	9/30/1991	OM
NEW MEXICO	$1.10	MJ	10/ 1/89	9/30/1991	OM
NEW YORK	$1.67	R	2/ 1/89	1/31/1992	C
NORTH CAROLINA	$1.36	R	7/ 1/88	9/30/1991	OM
NORTH CAROLINA	$1.10	MJ	7/ 1/88	9/30/1991	OM
NORTH DAKOTA	$1.18	R	7/ 1/89	6/30/1991	OM
NORTH DAKOTA	$1.10	MJ	7/ 1/89	6/30/1991	OM
OHIO	$1.01	MJ	10/ 1/89	9/30/1993	OM
OHIO	$1.12	R	10/ 1/89	9/30/1993	OM

FORMULA COMPANY ABBREVIATIONS:

R - Ross Laboratories
MJ - Mead Johnson
W - Wyeth-Ayerst Laboratories
C - Carnation Company
LL - Loma Linda
ABBOTT - Abbott Laboratories
RIMACO - Rimaco

TYPE OF AGREEMENTS:

C - competitive sole source
CM - competitive multi-source
OM - open market

Appendix A

WIC INFANT FORMULA REBATES
REBATE CONTRACT SUMMARY - Contracts awarded as of 5/15/91

STATE AGENCY	CURRENT REBATE	FORMULA COMPANY	EFFECTIVE CONTRACT DATE	CONTRACT EXPIRATION DATE	CONTRACT TYPE
OKLAHOMA	$.93	W	5/ 1/89	4/30/1992	C
OREGON	$1.22	W	12/ 1/90	11/30/1992	C
PENNSYLVANIA	$1.62	R	10/ 1/88	9/30/1993	C
RHODE ISLAND	$1.53	MJ	7/ 1/89	9/30/1991	C
SOUTH CAROLINA	$.59	R	4/ 1/89	9/30/1993	OM
SOUTH CAROLINA	$.55	MJ	4/ 1/89	9/30/1993	OM
SOUTH DAKOTA	$1.36	R	10/ 1/88	9/30/1993	OM
SOUTH DAKOTA	$1.10	MJ	10/ 1/88	9/30/1993	OM
TENNESSEE	$1.63	MJ	3/ 1/89	2/29/1992	C
TEXAS	$1.37	MJ	10/ 1/90	9/30/1992	C
UTAH	$.39	R	10/ 1/89	9/30/1992	OM
UTAH	$.37	MJ	10/ 1/89	9/30/1992	OM
UTAH	$1.18	C	10/ 1/89	9/30/1992	OM
VERMONT			HOME DELIVERY		
VIRGINIA	$1.36	R	3/ 1/89	2/29/1992	OM
VIRGINIA	$1.10	MJ	3/ 1/89	2/29/1992	OM
WASHINGTON	$1.10	MJ	5/ 1/89	6/30/1992	OM
WASHINGTON	$1.17	W	6/ 1/89	6/30/1991	OM
WASHINGTON	$1.18	R	5/ 1/89	6/30/1992	OM
WASHINGTON	$.50	LL	4/ 1/89	6/30/1992	OM
WEST VIRGINIA	$1.00	MJ	10/ 1/90	9/30/1992	CM
WEST VIRGINIA	$1.10	R	10/ 1/90	9/30/1992	CM
WISCONISN	$1.26	W	5/ 1/90	4/30/1993	C
WYOMING	$1.32	R	10/ 1/87	3/31/1993	OM
WYOMING	$.73	MJ	10/ 1/87	9/30/1991	OM
CHEROKEE E.B. (NC)	$.73	MJ	(Currently	9/30/1990	OM
CHEROKEE E.B. (NC)	$.74	R	pursuing	1/31/1991	OM
CHEROKEE E.B. (NC)	$1.18	C	options)	9/30/1990	OM
CHEROKEE (OK)	$.75	MJ	10/ 1/90	9/30/1992	OM
CHEROKEE (OK)	$.90	R	10/ 1/90	9/30/1992	OM
CHEYENNE RVR. (SD)	$.73	MJ	10/ 1/90	9/30/1991	OM
CHEYENNE RVR. (SD)	$.80	R	10/ 1/90	9/30/1991	OM
CHICKASAW (OK)	$.74	MJ	10/ 1/90	9/30/1991	OM
CHICKASAW (OK)	$.80	R	10/ 1/90	9/30/1991	OM
CHOCTAW (OK)	$.80	R	10/ 1/90	9/30/1991	OM
CHOCTAW (OK)	$.74	MJ	10/ 1/90	9/30/1991	OM
FIVE SANDAVOL (NM)	$.80	R	10/ 1/90	9/30/1991	OM
FIVE SANDAVOL (NM)	2.94*	MJ	10/ 1/90	9/30/1990	OM
GUAM	$.75	MJ	10/ 1/90	9/30/1991	C
ITC/ARIZONA	$.73	MJ	10/ 1/90	9/30/1993	C
ITC/OKLAHOMA	$.73	MJ	10/ 1/90	9/30/1991	OM
ITC/OKLAHOMA	$.74	R	1/ 1/91	12/31/1992	OM
ITC/OKLAHOMA	$.33	C	1/ 1/91	1/ 1/1992	OM
NAVAJO (AZ)	$.73	MJ	12/ 1/90	9/30/1992	CM
NAVAJO (AZ)	$.81	R	12/ 1/90	9/30/1992	CM
OTOE-MISSOURIA	$.80	R	11/ 1/90	10/31/1991	OM
OTOE-MISSOURIA	$.73	MJ	11/ 1/90	10/31/1991	OM
POTAWATOMI (OK)	$.73	MJ	11/ 1/90	9/30/1992	OM
POTAWATOMI (OK)	$1.07	C	11/ 1/90	9/30/1992	OM
POTAWATOMI (OK)	$.80	R	11/ 1/90	10/31/1992	OM
PUERTO RICO	$.43	ABBOTT	7/ 2/90	6/30/1992	OM
PUERTO RICO	$.40	W	7/ 2/90	6/30/1992	OM
PUERTO RICO	$.40	MJ	7/ 2/90	6/30/1992	OM
PUERTO RICO	$.50	RIMACO	7/ 2/90	6/30/1992	OM
ROSEBUD SIOUX (SD)	$.80	R	10/ 1/90	9/30/1991	CM
ROSEBUD SIOUX (SD)	$.73	MJ	10/ 1/90	9/30/1992	CM
SHOSHONE ARAPAHOE(WY)	$.73	MJ	7/ 1/90	6/30/1991	OM
SHOSHONE ARAPAHOE(WY)	$.80	R	10/ 1/90	9/30/1991	OM
SENECA NATION (NY)	$.73	MJ	9/ 1/90	9/30/1991	OM

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TYPE OF AGREEMENTS:
C - competitive sole source
CM - competitive multi-source
OM - open market

* Rebate for powdered formula.

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REBATE CONTRACT SUMMARY - Contracts awarded as of 5/15/91

STATE AGENCY	CURRENT REBATE	FORMULA COMPANY	EFFECTIVE CONTRACT DATE	CONTRACT EXPIRATION DATE	CONTRACT TYPE
STANDING ROCK (ND)	$.66	R	12/ 1/90	11/30/1991	OM
THREE AFFIL. TRIBES	$.80	R	10/ 1/90	9/30/1991	OM
UTE MOUNTAIN (CO)	$.73	MJ	8/ 1/89	9/30/1991	OM
UTE MOUNTAIN (CO)	$.80	R	8/ 1/89	7/31/1991	OM
VIRGIN ISLANDS	$.45	ABBOTT	12/ 1/90	9/30/1992	C
WCD (OK)	$.75	MJ	10/ 1/90	9/30/1991	OM
WCD (OK)	$.80	R	10/ 1/90	9/30/1991	OM
WINNEBAGO (NE)	$.80	R	7/ 1/90	6/30/1991	OM
WINNEBAGO (NE)	$.73	MJ	7/ 1/90	6/30/1991	OM
ZUNI (NM)	$.73	MJ	11/ 1/90	10/31/1991	OM
ZUNI (NM)	$.80	R	10/ 1/90	9/30/1991	OM
ACL	DIRECT DISTRIBUTION				
8N PUEBLO	DIRECT DISTRIBUTION				
ISLETA	DIRECT DISTRIBUTION				
MICOSOUKEE	DIRECT DISTRIBUTION				
SANTO DOMINGO	DIRECT DISTRIBUTION				
SAN FELIPE	DIRECT DISTRIBUTION				
SEMINOLES	HOME DELIVERY				
INDIAN TOWNSHIP	NOT FEASIBLE				
ITCN	NOT FEASIBLE				
CHOCTAW (MS)	NOT FEASIBLE				
MANNILAQ	NOT FEASIBLE				
PLEASANT POINT	NOT FEASIBLE				

FORMULA COMPANY ABBREVIATIONS:
R - Ross Laboratories
MJ - Mead Johnson
W - Wyeth-Ayerst Laboratories
C - Carnation Company
LL - Loma Linda
ABBOTT - Abbott Laboratories
RIMACO - Rimaco

TYPE OF AGREEMENTS:
C - competitive sole source
CM - competitive multi-source
OM - open market

* Rebate for powdered formula.

WIC PROGRAM - STUDIES OF INFANT FORMULA REBATE BILLING PROCEDURES
-SUMMARY OF FINDINGS-

Two studies were performed by the USDA Office of Inspector General (OIG) and the General Accounting Office (GAO) which reviewed the infant formula rebate billing procedures in the Supplemental Food Program for Women, Infants and Children (WIC). The findings are as follows:

<u>Office of Inspector General</u>

- o Infant formula rebate systems are accountable; the State agencies are billing the formula manufacturers on a timely basis in the appropriate amounts.
- o State agencies are effectively coordinating their rebate receipts and Letter of Credit drawdowns.
- o OIG would monitor the Federal Trade Commission's (FTC) investigation, initiated in May 1990, into the competitive conduct of the infant formula industry.

<u>General Accounting Office</u>

- o Cost-containment initiatives for infant formula have been an effective means of saving WIC food funds and increasing program participation. Over fiscal years 1988 and 1989, infant formula rebates generated cumulative savings of about $326 million. As a result of cost-containment initiatives for infant formula, the WIC program now reaches about 60 percent of eligible women, infants, and children.
- o The analysis by GAO indicated that WIC agencies that used competitive bidding to obtain rebate contracts realized the greatest savings. At the time of the review, the average price paid for a 13-ounce can of milk-based formula by agencies with competitive sole source contracts was $0.36 lower than the price paid by agencies with open market contracts.
- o During the review period, WIC agencies with retail food distribution systems could choose between various cost-containment approaches. In November 1989, the Child Nutrition and WIC Reauthorization Act of 1989 (P.L. 101-147) was enacted. This act requires WIC agencies with retail food distribution systems to use competitive bidding to procure infant formula, unless another cost-containment approach yields equal or grater savings. (The Secretary of Agriculture is authorized to waive the requirement for competitive bidding in the procurement of infant formula for Indian agencies with 1,000 participants or less.)

- Rebate amounts have varied substantially over time and among WIC agencies. Analysis by GAO of the infant formula industry showed that the introduction of competitive bidding led to greater cost-containment savings than those resulting from the open market approach. Bidding patterns since the passage of P.L. 101-147, however, indicated that formula manufacturers may be modifying their bidding strategy. Winning bids received by several WIC agencies during 1990 have provided lower rebates than the winning bids received during the time of the review. On May 29, 1990, the Federal Trade Commission (FTC) announced it would conduct an inquiry focused on pricing patterns in the infant formula industry. The investigation is on-going at this time.

- Only three firms are responsible for almost all domestic infant formula production, therefore, coordination of pricing and marketing strategies between the manufacturers is always a potential danger. Competitive bidding, required by P.L. 101-147, will successfully yield high rebates only to the extent that infant formula manufacturers act independently. Consequently, the FTC's efforts to assure competition in the infant formula industry will be an important element in State efforts to maximize cost-containment savings to maintain or expand WIC service levels

- No additional follow-up is planned by either office.

United States Department of Agriculture

Office of Inspector General

Washington, D.C. 20250

DATE: SEP 10 1990

REPLY TO
ATTN. OF: 27031-23-At

SUBJECT: Special Supplemental Food Program for Women, Infants, and Children - Cost Containment Systems

TO: Betty Jo Nelsen
Administrator
Food and Nutrition Service

We have completed our survey of the Special Supplemental Food Program for Women, Infants, and Children (WIC) - Cost Containment Systems. The survey emphasized infant formula rebate systems. The purpose of the survey was to: (1) evaluate State agencies' procurement procedures; and (2) determine whether State agencies accurately billed vendors, promptly collected proceeds, and used the funds for program operations.

The survey was conducted at the Food and Nutrition Service (FNS) Headquarters, the FNS Southeast Regional Office, and State agencies in Florida, North Carolina, Tennessee, and Texas during the period March 1990 through July 1990. We also reviewed the results of a WIC cost containment audit recently completed by the General Accounting Office.

On May 8, 1990, you requested that the Office of Inspector General (OIG) review possible bid rigging by the infant formula manufacturers. This issue was the subject of a recent congressional hearing. As a result, the Federal Trade Commission (FTC) initiated an investigation into the competitive conduct of the infant formula industry. OIG will monitor the FTC work. In addition, OIG has recently initiated, at your request, an investigation of the contract award process for infant formula in Puerto Rico.

Since our survey disclosed no significant problems in the areas reviewed, we plan no further work. A response to this memorandum is not necessary.

We appreciate the cooperation and courtesies extended by your staff.

for JAMES R. EBBITT
Assistant Inspector General
for Audit

United States General Accounting Office

GAO

Report to the Chairman, Subcommittee on Oversight and Investigations, Committee on Energy and Commerce, House of Representatives

September 1990

INFANT FORMULA

Cost Containment and Competition in the WIC Program

GAO/HRD-90-122

GAO

United States
General Accounting Office
Washington, D.C. 20548

Human Resources Division

B-240766

September 27, 1990

The Honorable John D. Dingell
Chairman, Subcommittee on Oversight
and Investigations
Committee on Energy and Commerce
House of Representatives

Dear Mr. Chairman:

This report responds to your request for information on infant formula cost-containment initiatives in the Special Supplemental Food Program for Women, Infants, and Children (WIC). This federal nutrition program served less than 50 percent of eligible women, infants, and children in the mid-1980s. To reach more of the unserved population, directors of WIC agencies developed strategies to reduce the cost of WIC foods, targeting infant formula as the food likely to yield the greatest savings.[1]

The majority of WIC agencies distribute food to participants through local retail outlets, and most agencies implemented cost containment by obtaining contracts from formula manufacturers for cash rebates on infant formula. Although several types of rebates were developed, we focused our review on competitive sole source and open market rebate contracts since they are the most commonly used approaches to cost containment.[2]

In discussions with your staff, we agreed to provide information on (1) the status of WIC agencies' implementation of infant formula cost-containment initiatives, (2) the effect of cost-containment initiatives on the cost of infant formula to the WIC program, and (3) the structure of the infant formula industry and its effect on cost-containment initiatives.

To obtain this information, we did the following: surveyed all 86 WIC agency directors using a mail questionnaire; conducted field work at seven WIC state agencies; interviewed officials of the Food and Nutrition

[1]In a 1987 report entitled Supplemental Food Program: Using Cost Savings Methods Could Increase Participation (GAO/RCED-88-35BR, Oct. 9, 1987), GAO estimated that a significant number of women, infants, or children could be added to the WIC program by applying savings achieved in the purchase of infant formula at less than retail cost.

[2]Under the competitive sole source approach, a contract is awarded to the manufacturer who submits the best bid (that is, either the lowest net cost of infant formula or the highest rebate). Under the noncompetitive open market approach, WIC agencies award contracts to all manufacturers that agree to provide rebates to the WIC program. However, manufacturers that do not offer rebates can continue to sell their products through the WIC program.

Service (FNS), which administers the program for the U.S. Department of Agriculture; interviewed three infant formula manufacturers, including two of the three largest domestic infant formula producers; and estimated the effect of various factors on the prices WIC agencies paid for infant formula. We conducted our review between April 1989 and October 1989 in accordance with generally accepted government auditing standards. See appendix I for a detailed description of our scope and methodology.

Results in Brief

Cost-containment initiatives for infant formula have been an effective means of saving WIC food funds and increasing program participation. Over fiscal years 1988 and 1989, infant formula rebates generated cumulative savings of about $326 million. As a result of cost-containment initiatives for infant formula, the WIC program now reaches about 60 percent of eligible women, infants, and children.

Our analysis showed that WIC agencies that used competitive bidding to obtain rebate contracts realized the greatest savings. At the time of our review, the average price paid for a 13-ounce can of milk-based formula by agencies with competitive sole source contracts was $0.36 lower than the price paid by agencies with open market contracts.

During our review period, WIC agencies with retail food distribution systems could choose between various cost-containment approaches. In November 1989, the Child Nutrition and WIC Reauthorization Act of 1989 (P.L. 101-147) was enacted. This act requires WIC agencies with retail food distribution systems to use competitive bidding to procure infant formula, unless another cost-containment approach yields equal or greater savings.[3]

Rebate amounts have varied substantially over time and among WIC agencies. Our analysis of the infant formula industry showed that the introduction of competitive bidding led to greater cost-containment savings than those resulting from the open market approach. Recent bidding patterns since the passage of P.L. 101-147, however, indicate that formula manufacturers may be modifying their bidding strategy. Winning bids received by several WIC agencies during 1990 have provided lower rebates than the winning bids received during the time of our review. On May 29, 1990, the Federal Trade Commission (FTC)

[3]The Secretary of Agriculture is authorized to waive the requirement for competitive bidding in the procurement of infant formula for Indian agencies with 1,000 participants or less.

announced that it will conduct an inquiry focused on pricing patterns in the infant formula industry.

Because only three firms are responsible for almost all domestic infant formula production, coordination of pricing and marketing strategies between the manufacturers is always a potential danger. Competitive bidding, required by P.L. 101-147, will successfully yield high rebates only to the extent that infant formula manufacturers act independently. Consequently, the FTC's efforts to assure competition in the infant formula industry will be an important element in state efforts to maximize cost-containment savings to maintain or expand WIC service levels.

Background

WIC is a federal nutrition program for low-income women, their infants, or children under the age of 5 who are at nutritional risk. In fiscal year 1989, WIC served an estimated 4.1 million participants per month, and federal program costs totaled $1.90 billion. State or local matching of federal funds is not required, although 15 states appropriated about $68.5 million in state funds for WIC food purchases in fiscal year 1990. In-kind contributions (office space, support from accounting and payroll staff, and maintenance and security services) are also provided by the states.

FNS administers the program and provides grants to (1) WIC agencies in the 50 states, the District of Columbia, Puerto Rico, Guam, the Virgin Islands and (2) 32 officially recognized Indian agencies. WIC grants are used to provide supplemental food to each WIC participant and to pay WIC agency administrative costs. Each WIC agency determines the income eligibility of its participants. Most agencies use the maximum limit of 185 percent of the federal poverty level, established by the U.S. Department of Health and Human Services. WIC agencies also give priority to different categories of participants, according to nutritional and health risk criteria. Pregnant and breast-feeding women and infants with documented nutritionally related medical problems are given the highest priority. The other WIC participant categories are postpartum women and children.

WIC agencies provide participants with specific food packages depending on their nutritional needs. Agencies distribute these packages through one or more systems: retail purchase, under which participants use vouchers or checks issued by WIC staff to buy authorized foods at retail stores; home delivery, under which food is delivered directly to the homes of participants by companies under contract with the state or

local WIC agency; and direct distribution, under which participants pick up food (purchased in bulk by the WIC program) at designated distribution points. The retail purchase system is the most commonly used food distribution system.

Infant Formula Targeted for Cost-Containment Efforts

WIC directors targeted infant formula as a source of food cost reductions for three reasons. First, infant formula accounted for nearly 40 percent of total WIC food costs. Second, formula prices rose at a faster rate than overall food prices —the price of infant formula doubled during the 1980s. Third, the structure of the infant formula industry suggested that cost-containment initiatives could be successful.

Rebate Approach to Cost Containment

Several strategies evolved for reducing the cost of infant formula, depending on the type of food distribution system used. WIC agencies with home delivery and direct distribution systems first tried infant formula cost containment in 1974. These agencies solicited competitive bids and selected the lowest bidder as their infant formula supplier. In the mid-1980s, WIC agencies with retail distribution systems developed strategies to obtain infant formula rebates; through these rebates, manufacturers reimburse the WIC program a set contract amount for each unit of formula WIC participants purchase from retail stores. Two main rebate approaches evolved:

- Competitive sole source. Under this approach, a WIC agency awards a contract to the manufacturer who submits the best bid, usually defined as either the lowest net cost of infant formula or the highest rebate. WIC participants can purchase only the formula manufactured by the company providing the rebate, unless a physician prescribes an alternative brand for medical reasons. The winning infant formula manufacturer receives the distinction and market advantage of being the only infant formula provider for a state's WIC program.
- Open market. Under this noncompetitive approach, a WIC agency may award contracts to more than one manufacturer that agrees to provide a rebate. Companies that do not offer rebates can continue to sell their products through the WIC program. Participants are not restricted in their choice of formula, and WIC staff cannot encourage the use of formula brands for which rebates are provided over other brands that do not provide rebates. The formula manufacturers that provide rebates protect current market positions, but receive no additional benefit.

Most WIC Agencies Had Cost-Containment Contracts

At the time of our review, 61 of the 86 WIC agencies had contracts to obtain formula at a cost savings. Fifty-seven WIC agencies implemented retail rebate contracts; 5 had home delivery contracts, and 3 had direct distribution contracts.[4] Of the 57 agencies with retail rebate contracts, 35 used the open market rebate approach; 18 used the sole source rebate approach; 3 used the competitive multi-source rebate approach; and 1 used the preferred provider rebate approach. However, the 18 agencies that used sole source rebates served 57 percent of the WIC infant population. Almost all agencies awarded their rebate contracts to one or both of the largest domestic infant formula manufacturers—Ross Laboratories and Mead Johnson. (See app. II, p. 12, for details on the status of cost-containment initiatives.)

Cost-Containment Savings Have Resulted in Program Expansion

Over fiscal years 1988 and 1989, infant formula rebates generated cumulative savings of about $326 million. These savings were used to increase total program participation from less than 50 percent of eligible women, infants, and children to about 60 percent of those eligible for the program. Rebate savings supported an estimated 74,000 women, infants, and children per month in fiscal year 1988 and an additional 400,000 WIC participants per month in 1989. (See app. II, p. 18.)

Competition Produced Lowest Infant Formula Prices

Our analysis shows that at the time of our review, several factors influenced the cost of infant formula to WIC agencies. WIC agencies that paid a lower price for infant formula (1) used competitive bidding to obtain rebate contracts, (2) served a low percentage of their eligible population, or (3) were state agencies rather than Indian agencies.

Competitive bidding had the greatest effect on reducing the after-rebate price of infant formula sold to WIC agencies. The average price paid for a 13-ounce can of milk-based formula concentrate by agencies with competitive sole source contracts was $0.36 lower than the average price paid by agencies with open market contracts. The after-rebate price paid by WIC agencies for a 13-ounce can of formula ranged from $0.13 to $1.24. (See apps. II, p. 18, and III, p. 28.)

[4]The total number of cost-containment contracts is greater than 61 because some WIC agencies had more than one type of distribution system and awarded more than 1 cost-containment contract.

Amount of Rebates Varied Substantially Over Time

Rebate amounts have varied substantially over time and among WIC agencies. Until recently, the size of rebates increased steadily as the three major manufacturers sought to capture or maintain market shares. Tennessee accepted the first bid ($0.40) submitted under the competitive sole source approach in August 1986. The rebate amounts under the competitive approach reached their maximum of $1.52 in October 1989. The first open market bids ranged from $0.17 to $0.23, and the average open market rebate was about $0.95 by the end of 1989.

Since February 1990, however, rebate bids have been lower. Nine states opened bids for rebates between February and May 1990. During this period, the maximum bid under the competitive approach fell to $1.30 and most of the competitive bids were for about $0.75 or less. Testimony on May 29, 1990, before the Subcommittee on Antitrust, Monopolies and Business Rights, Senate Judiciary Committee, revealed that one manufacturer notified four WIC agencies, in a March 1990 letter, that it planned to submit rebate bids of $0.75 under both competitive and open market approaches. Further testimony indicated that other infant formula manufacturers also appeared to be lowering their bids to about the $0.75 level for rebate contracts. (See app. II, p. 20.) Concerns about the above industry actions prompted the FTC to initiate an inquiry on pricing patterns in the infant formula industry.

Our analysis of the domestic infant formula industry indicates that the introduction of competitive bidding led to greater cost-containment savings than those resulting from the open market approach because the industry lacks strong inherent pressure for price competition. In the absence of competitively bid contracts, the natural pressures for price competition between manufacturers are limited for the following reasons: (1) there are few competitors in the domestic infant formula market; (2) it is difficult for new competitors to enter the domestic market; and (3) consumer selection of formula brands may be relatively unresponsive to price differentials between brands. (See app. II, p. 21.)

Recent bidding patterns by the three major manufacturers do not provide a clear indication of the future direction of rebates. However, if average rebate amounts decline without a commensurate increase in appropriations, fewer women, infants, and children will be served by the WIC program. Competitive bidding, required by P.L. 101-147, will successfully yield high rebates only to the extent that infant formula manufacturers act independently. Efforts by the FTC to assure competition in the infant formula industry will be an important element in state

efforts to maximize cost-containment savings to maintain or expand WIC service levels.

Agency Comments

We did not obtain written agency comments, but discussed the contents of this report with FNS officials and incorporated their comments in the report as appropriate.

We are sending copies of this report to the Secretary of Agriculture; the Director, Office of Management and Budget; and to interested congressional committees and members. We will make copies available to others on request.

If you or your staff have any questions about this report, please call me on (202) 275-1655. Other major contributors to this report are listed in appendix IV.

Sincerely yours,

Linda G. Morra

Linda G. Morra
Director, Intergovernmental
and Management Issues

Contents

'igures

Abbreviations

FNS	Food and Nutrition Service
FTC	Federal Trade Commission
RFP	request for proposal
WIC	Special Supplemental Food Program for Women, Infants, and Children

Scope and Methodology

Using a mail questionnaire, we surveyed all WIC agency directors for information concerning their efforts to implement cost containment for infant formula. Questions focused primarily on WIC participant information, cost-containment contracts, program administration, and opinions on various cost-containment issues. Before we mailed the questionnaire to respondents, we discussed it with FNS officials and pretested it with WIC directors in four state agencies and one Indian agency.

Our survey universe consisted of 87 WIC agencies in the 50 states, the District of Columbia, three territories, and 33 officially recognized Indian tribes or councils.[1] Copies of the questionnaire were mailed in July 1989, and 76 responses were received by September 22, 1989. We telephoned all WIC program directors who had not responded and recorded their responses. After adjusting the universe to 86, because of the Indian agency that was no longer operating a WIC program, the response rate was 100 percent.

To obtain more detailed information, in August and September 1989 we did field work at the WIC agencies in Alabama, Arkansas, Delaware, the District of Columbia, Florida, Oregon, and Wisconsin. The field work locations were selected based on the type of rebate contract (open market or sole source) and diversity of geographic representation. We selected only agencies with rebate contracts since that was the most commonly used cost-containment approach.

To obtain background information and documentation on WIC legislation, regulations, and program operations, we met with officials at FNS headquarters and one regional office. We also met with three infant formula manufacturers—Ross Laboratories, Wyeth-Ayerst Laboratories, and Carnation—to obtain their views on the infant formula industry and cost-containment initiatives.[2]

To study the effects of different initiatives on the cost of infant formula, we reviewed differences in the adjusted price (wholesale list price minus rebate) of 13-ounce cans of concentrated milk-based formula. To distinguish the separate effects that selected factors (such as bidding system employed, size of the WIC and non-WIC infant population, and regional cost differentials) had on the adjusted price of infant formula, we

[1] During our review, one Indian agency discontinued its WIC program.

[2] We requested a meeting with representatives of Mead Johnson and provided them with a list of questions to obtain their views on infant formula cost containment. After several attempts, we were unable to schedule a meeting with Mead Johnson representatives.

employed multiple regression analysis—a standard statistical technique that quantifies the relationship between a dependent variable and a set of independent variables. We limited our analysis to the 42 state agencies and 14 Indian agencies that used retail rebate contracts and provided sufficient data.[3] The specific variables employed in the analysis and the regression results (estimated coefficients and their standard errors) are reported in appendix III, page 30.

Our audit work was carried out between April 1989 and October 1989 in accordance with generally accepted government auditing standards.

[3]One WIC agency with an open market contract did not provide complete information and was not, therefore, included in the regression analysis.

Most WIC Agencies Have Implemented Cost-Containment Initiatives for Infant Formula

At the time of our review, 61 of the 86 WIC agencies (71 percent) had contracts with infant formula manufacturers to obtain formula at cost savings. Retail rebate contracts were the cost-containment approach most frequently used. Of the 86, 57 implemented retail rebate contracts; 5 had home delivery contracts, and 3 had direct distribution contracts.[1] Of the 57 agencies with rebate contracts, 35 used the open market approach; 18 used the sole source approach; 3 used the multi-source approach, and 1 used the preferred provider approach.[2] The 18 agencies with sole source contracts, however, served 57 percent of the total WIC infant population. Two manufacturers—Ross Laboratories and Mead Johnson—were awarded almost all of the rebate contracts.

Most WIC Agencies Had Cost-Containment Contracts for Infant Formula

Of the 86 WIC agencies, 61—45 state agencies and 16 Indian agencies—had contracts to obtain formula at cost savings; 25 WIC agencies—6 state agencies, 16 Indian agencies, and 3 agencies in the U.S. territories—did not have cost-containment contracts at the time of our review.

Although these 25 agencies did not have cost-containment contracts, 17 directors indicated that they planned to award contracts within 9 months; 13 of these directors reported that they planned to award open market rebate contracts.[3] The remaining 8 agencies—all Indian agencies—served a small number of participants, but a high percentage of the eligible population; therefore, the directors of these agencies said they either (1) would not award a cost-containment contract or (2) were not sure when they would award a contract.

Of the 57 WIC agencies with rebate contracts, 35—15 Indian agencies and 20 state agencies—had open market rebate contracts with two or more infant formula manufacturers; 18 state agencies had sole source rebate contracts, including three WIC agencies—Maryland, Delaware, and the District of Columbia—that jointly awarded a rebate contract covering the three WIC programs. Three WIC agencies received rebates through multi-source contracts, and one agency awarded a preferred

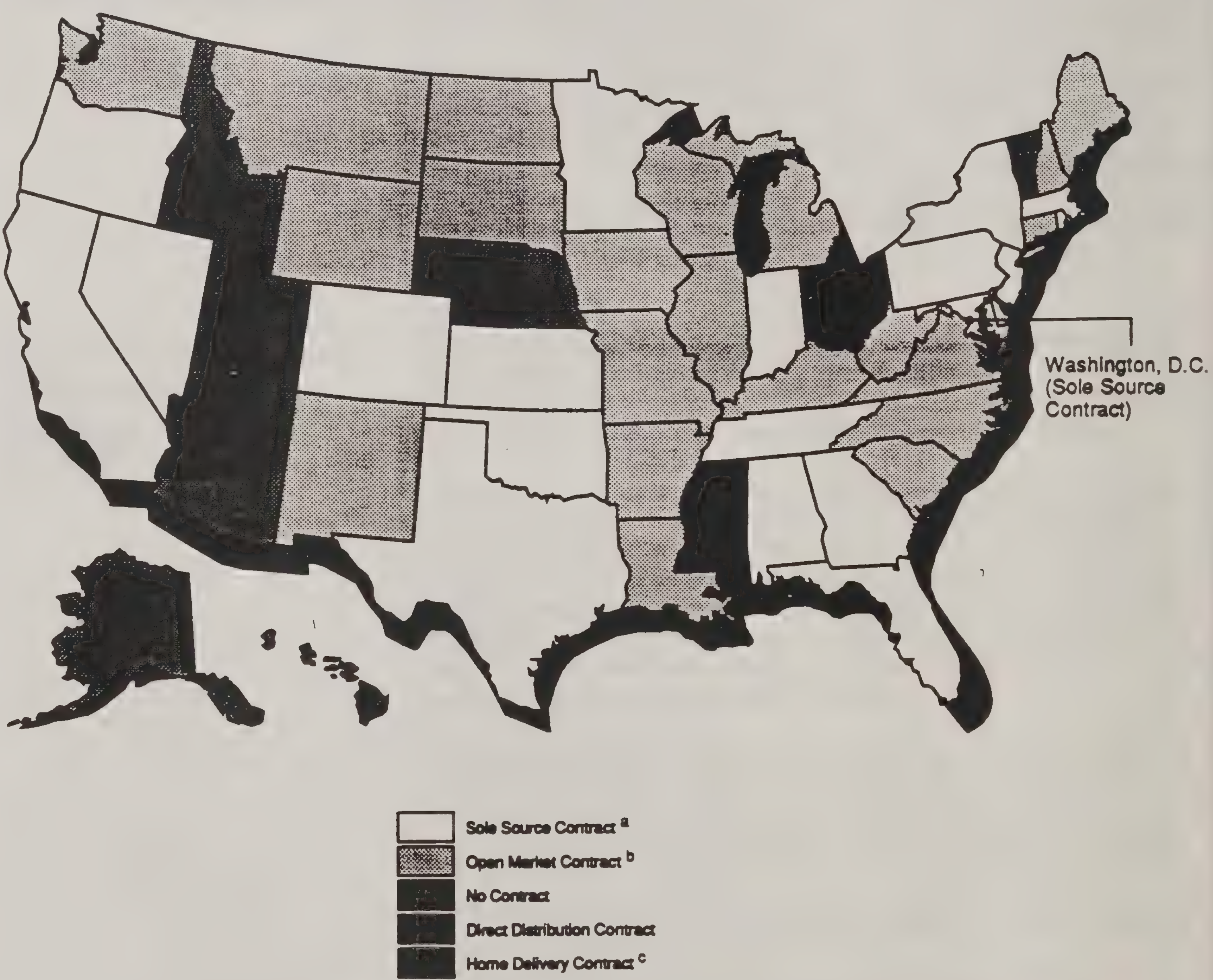
[1]The total number of cost-containment contracts is greater than 61 because some WIC agencies had more than one type of distribution system and awarded more than 1 cost-containment contract.

[2]Under the multi-source rebate approach, contracts are awarded to the best bidder and to any other bidders who meet specified minimum bid criteria. The preferred provider approach was originally intended to be a modification of the open market approach. However, after further consultation with FNS, the state agrees that this is a form of competitive bidding.

[3]The directors' comments about their cost-containment plans were made before P.L. 101-147 was passed; it requires WIC agencies with retail distribution systems to use competitive sole source contracts.

provider rebate contract. The type of cost-containment initiative used by the 50 state agencies and the District of Columbia is shown in figure II.1.

Figure II.1: Status of WIC Agency Cost-Containment Initiatives



[a]Colorado, Kansas, and Pennsylvania used multi-source rebate contracts, which are a variation of the sole source rebate approach.
[b]Illinois used a preferred provider contract.
[c]Maryland, New Hampshire, and Vermont also used home delivery contracts to serve a portion of their WIC participants.

The status of cost-containment efforts in the 32 Indian agencies and the U.S. territories is shown in table II.1.

Table II.1: Status of Indian and Territorial WIC Agencies' Cost-Containment Initiatives

Indian WIC agencies	
Open market	Maniilaq Association, AK
	Intertribal Council of AZ
	Ute Mountain Tribe, CO
	NE Indian Intertribal Development Corporation
	Five Sandoval Indian Pueblos, NM
	Seneca Nation, NY[a]
	Three Affiliated Tribes, ND
	Chicksaw Nation, OK
	Intertribal Council of OK
	Cherokee Nation, OK
	Tonkawa, OK
	Choctaw Nation of OK
	Cheyenne River Sioux Tribe, SD
	Rosebud Sioux Tribe, SD
	Shoshone and Arapahoe, WY
Home delivery	Seneca Nation, NY[a]
Direct distribution	San Felipe, NM
No contract	Navajo Nation, AZ
	Miccosukee Indians, FL
	Seminole, FL
	Indian Township, ME
	Pleasant Point, ME
	Choctaw Indians of MS
	Intertribal Council of NV
	San Domingo, NM
	ACL, NM
	Pueblo of Zuni, NM
	Eight Northern Indian Pueblo Council of NM
	Pueblo of Isleta, NM
	Eastern Band of Cherokee Indians, NC
	Standing Rock Sioux Tribe
	Potawatomi Indians of OK
	WCD Enterprises, Inc.
U.S. WIC territories	
No contract	Guam
	Puerto Rico
	Virgin Islands

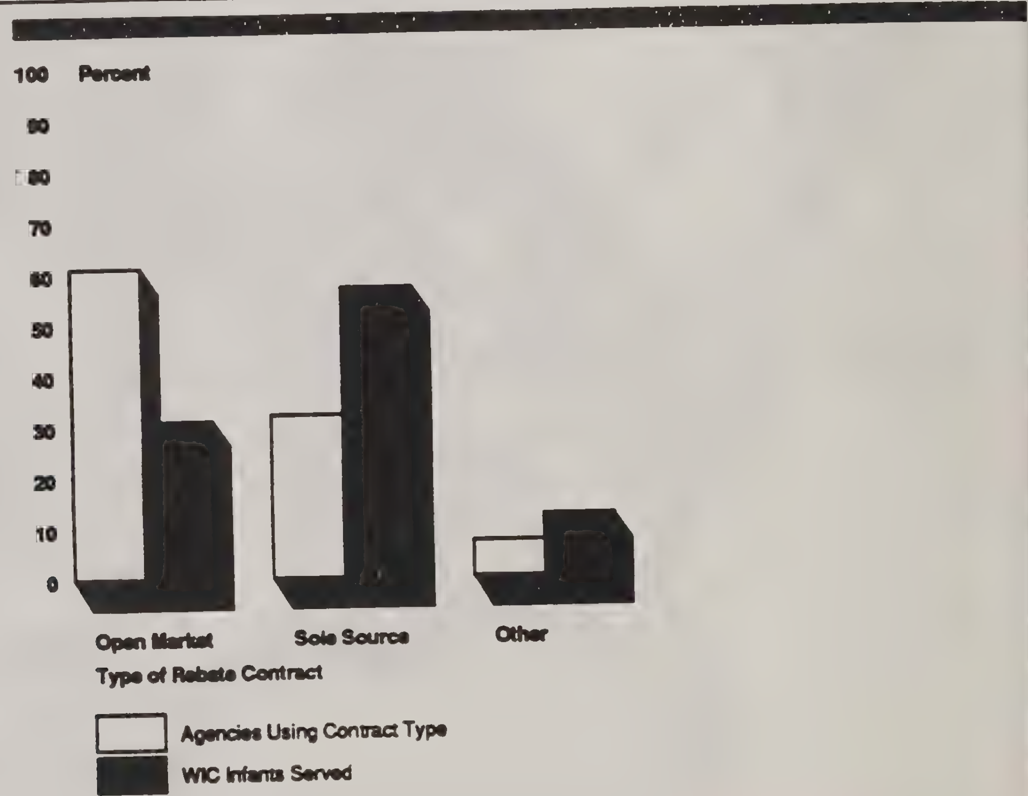
[a]WIC agency had contracts for more than one type of distribution system.

Source: The data in this table are based on responses to the GAO questionnaire sent to Indian agencies and WIC agencies in the U.S. territories.

Most WIC Infants Served by Sole Source Contracts

More WIC agencies had open market rebate contracts, but, as shown in figure II.2, a larger portion of the WIC infant population was served by the agencies with competitive sole source contracts.

Figure II.2: Agencies and WIC Infant Population Served by Type of Rebate Contract



Source: Responses to the GAO questionnaire and USDA data on the WIC infant population.

Most Rebate Contracts Awarded to Two Manufacturers

Almost all of the WIC agencies with rebate contracts awarded their contracts to two manufacturers, Ross Laboratories and Mead Johnson. The distribution of rebate contracts among infant formula manufacturers at the time of our review is shown in table II.2.

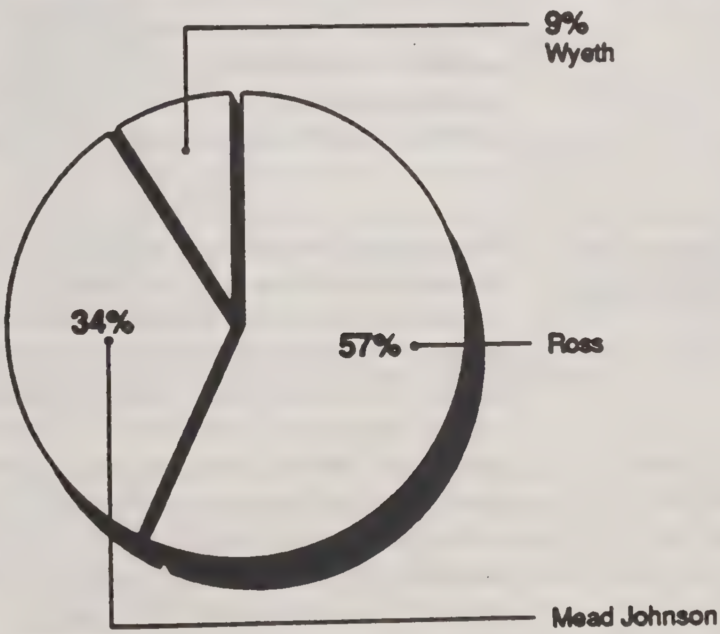
Table II.2: WIC Agency Rebate Contract Awards to Infant Formula Manufacturers

	WIC agencies awarding contracts			
	Open market	Sole source	Other	Total
Mead Johnson	33	9	3	45
Ross	31	7	4	42
Wyeth-Ayerst	3	2	0	5
Loma Linda	1	0	0	1
Carnation	1	0	0	1

Source: These data are based on responses to the GAO questionnaire by WIC directors.

The contracts awarded to Ross represented a larger share of the WIC infant population than did the contracts awarded to Mead Johnson, although more WIC agencies awarded contracts to Mead Johnson (see fig. II.3).

Figure II.3: WIC Infant Population Served by Contracts Awarded to Manufacturers



Note: Other manufacturers serve less than 1 percent of the WIC infant population.

Source: Responses to the GAO questionnaire and USDA data on the WIC infant population

Cost-Containment Savings Have Resulted in Program Expansion

Cost containment for infant formula has been an effective means of saving WIC funds and increasing program participation. FNS estimates that infant formula rebates generated cumulative savings of about $326 million over fiscal years 1988 and 1989. These savings were used to increase total participation to about 60 percent of those eligible for the program. Approximately 474,000 WIC participants were supported by rebate savings through the end of fiscal year 1989.

As shown in our regression analysis, competitive bidding was the greatest determinant of a lower adjusted price for infant formula. WIC agencies using the competitive sole source approach received higher rebates and paid a lower adjusted price for infant formula.

Rebate Savings Result in Program Expansion

Of the 57 WIC agencies we surveyed with retail rebate contracts, 32 had received a total of $167 million in rebates from the effective dates of their current contracts through May 1, 1989.[4] FNS estimates that infant formula rebates generated $32.6 million in savings and supported approximately 74,000 participants per month in fiscal year 1988. For fiscal year 1989, FNS reported rebate savings of $293 million, which supported an additional 400,000 program participants per month. Savings estimates were not available for cost-containment initiatives using home delivery or direct distribution approaches.

Three Factors Resulted in Lower Formula Prices for WIC Agencies

Our regression analysis of rebates identified three factors that were statistically significant determinants of a lower adjusted price (wholesale list price minus rebate) for infant formula in the WIC program.[5] Holding all other factors constant, we found that WIC agencies paid less for milk-based infant formula if they (1) used competitive bidding to obtain a rebate contract, (2) served a low percentage of their eligible WIC population, or (3) were state agencies rather than Indian agencies. We found no evidence that the total number of infants served by a WIC agency affected the price paid for infant formula: that is, it did not appear that agencies with large WIC populations obtained higher rebates than agencies with small WIC populations.

Of the factors considered in our economic analysis, competitive bidding (sole source and multi-source) had the greatest effect on reducing the

[4]One WIC agency with a rebate contract did not provide information on the amount of rebates it had received. Contracts for the remaining 24 agencies were not effective until after May 1, 1989.

[5]See appendix III for a discussion of statistical significance and the criteria used for this analysis.

price of infant formula. WIC agencies that solicited bids using the competitive sole source approach received higher rebates and paid an average adjusted price that was $0.36 lower than the average adjusted price paid by agencies using the open market approach. Under the competitive multi-source approach, adjusted prices were $0.24 lower than open market prices.

As shown in table II.3, as of June 1, 1989, the lowest sole source rebate for a 13-ounce can of concentrated milk-based formula was $1.05, which was $0.04 higher than the highest open market rebate of $1.01. The adjusted price of formula varied by as much as $1.11, ranging from $0.13 to $1.24.

Table II.3: Range of Rebates and Adjusted Formula Prices for Retail Contracts Awarded to Three Manufacturers (as of June 1, 1989)

	Infant formula manufacturers		
Formula price	**Ross**	**Mead Johnson**	**Wyeth**
Wholesale price	$1.58	$1.55	$1.45
Open market			
Rebate range	0.47–1.01	0.47–0.97	0.21–0.88
Adjusted price range	1.11–0.57	1.08–0.58	1.24–0.57
Sole source			
Rebate range	1.05–1.45	1.09–1.36	1.09–1.13
Adjusted price range	0.53–0.13	0.46–0.19	0.36–0.32
Multi-source			
Rebate range	1.01–1.21	0.97	
Adjusted price range	0.57–0.37	0.58	

Note: Rebate amounts, adjusted prices, and wholesale prices are for a 13-ounce can of concentrated milk-based formula. Adjusted price is determined by subtracting the rebate from the manufacturer's wholesale price.

WIC agencies that served a low percentage of their eligible population paid less for infant formula than agencies that served a high percentage of their eligible population. An increase of 10 percentage points in the proportion of the eligible population served was associated with an adjusted price that was $0.04 higher. This could occur because manufacturers may be reluctant to offer high rebates when savings unused by a WIC agency are returned to FNS and distributed to other agencies that may be served by competing manufacturers.

On average, Indian agencies that have retail rebate contracts paid $0.55 more for infant formula than WIC agencies administered by states with retail rebate contracts. The regression results indicate that part of the

difference ($0.17) occurs because all of the Indian agencies have open market contracts, and 50 percent of the states have competitively bid contracts. The fact that Indian agencies serve a higher proportion of their eligible population, on average, than state agencies explains an additional $0.11 of the difference.[6] The remainder ($0.27) of the difference between the price paid by Indian agencies and the price paid by state agencies cannot be explained by the factors we considered in our economic analysis.

Program regulations do not prohibit Indian agencies from obtaining infant formula at lower prices in conjunction with state agency cost-containment contracts. On average, Indian agencies served a higher percentage of their eligible population due, in part, to their close working relationship with Indian health agencies. The high service levels realized by many Indian agencies reduce their incentive for saving on formula costs because the opportunities for expanding their own programs are limited. However, such savings could be redistributed to other WIC agencies with greater potential to increase their service levels.

Amount of Rebates Varied Widely Over Time

The amount manufacturers bid for rebate contracts has varied substantially over time and among the states. In August 1986, only one manufacturer responded to Tennessee's second request for proposal (RFP) for competitive bids to become the sole supplier of WIC infant formula in the state. No manufacturers had responded to the state's first RFP in January 1986. Tennessee accepted the manufacturer's rebate offer of $0.40 per can. Oregon accepted a competitively bid rebate offer of $0.60 from the same manufacturer in July 1987. Again, this manufacturer was the only company to bid on Oregon's competitive RFP.

Various states proceeded with either open market or competitive sole source approaches for containing infant formula costs. The open market approach was adopted by Florida, Michigan, and Wyoming in late 1987 and early 1988. Winning bids ranged from $0.17 to $0.23. In March 1988, Texas elected the competitive sole source approach and accepted a winning bid of $0.92. This was a significant bid because it was the first time that more than one major manufacturer had bid under the competitive approach to cost containment.

[6]On average, Indian agencies served 72.6 percent of their eligible population; non-Indian agencies served 47.8 percent.

Two or more of the major manufacturers submitted competitive or open market bids in response to all but one of the state agency bid requests issued during the remainder of 1988 and in 1989. Although the two largest manufacturers urged states to reject competitive bidding and to adopt the open market approach, the manufacturers generally attempted to win sole source contracts by submitting competitive bids. By the end of 1989, 19 states had competitive sole source contracts and the average rebate level in these states was $1.37 per can. Rebate levels for open market contracts rose as well. By the end of 1989, the average rebate level for the open market approach was about $0.95 per can.[7]

In March 1990, the trend of the earlier 2 years was upset when one manufacturer notified several states in writing that it planned to submit bids of $0.75 under both competitive and open market approaches. Other infant formula manufacturers have modified their bidding strategies, resulting in lower winning bids for rebate contracts in 1990.

Structure of the Infant Formula Industry Affects Bidding Strategy

The introduction of competition led to greater cost-containment savings than those resulting from the open market approach because of (1) the structure of the infant formula industry and (2) the environment in which it operates. In the absence of competitively bid contracts, the natural pressures for price competition between manufacturers in the infant formula industry are limited for several reasons:

- There are few competitors, with three manufacturers producing almost all of the domestic output of infant formula.
- It is difficult for new competitors to enter the domestic market.
- Consumer selection of formula brands may be relatively unresponsive to price differentials between brands.

Three Manufacturers Produce Almost All Domestic Infant Formula

The domestic infant formula industry, with sales in the United States of over $1.4 billion in 1987, is one of the most concentrated manufacturing industries in the country. There have been three major producers since the 1970s, all owned by pharmaceutical companies. Ross Laboratories, owned by Abbott Laboratories, produces Similac brand infant formula; Mead Johnson, owned by Bristol-Myers, produces Enfamil; and Wyeth-

[7] Testimony of Stefan Harvey, Director, Supplemental Food Program Project, Center on Budget and Policy Priorities, before the Subcommittee on Antitrust, Monopolies, and Business Rights, Senate Judiciary Committee (May 29, 1990).

Ayerst Laboratories, owned by American Home Products, produces SMA brand.

The three largest manufacturers produced approximately 99 percent of all domestic infant formula in 1987. Estimates of the individual market shares of these manufacturers are Ross, 55 percent; Mead Johnson, 35 percent; and Wyeth-Ayerst, 9 percent. These market shares show that the infant formula industry in the United States is highly concentrated. Loma Linda, Nestle's S.A. Carnation, and Gerber also sell infant formula in the United States; they jointly accounted for less than 1 percent of the domestic market.

Even though consumers may exhibit brand preferences, infant formula is a relatively homogeneous product. Since the passage and implementation of the Infant Formula Act of 1980, all brands of milk-based formula are nutritionally identical. The Infant Formula Act specifies nutrient content based on recommendations of the Committee on Nutrition of the American Academy of Pediatricians. In addition, the Secretary of Health and Human Services establishes requirements for nutrient quality factors and quality control procedures. Some infants can develop allergies to specific brands of formula, however, because of differences in nonnutritional content.

One factor that provides some differentiation between products in this industry is the existence of soy-based and whey-based infant formulas, which are used to feed infants with an intolerance to cows' milk. The three major manufacturers produce both milk-based and soy-based formula. Loma Linda produces only soy-based formula; Nestle's S.A. Carnation company has recently entered the market with a whey-based specialty formula.

New Competitors Have Difficulty Entering the Market

Barriers exist in the infant formula industry that inhibit the entry of new firms and thus limit the degree of competition in the industry. These barriers are related to marketing, rather than manufacturing, of infant formula.[8]

[8]Manufacturing economies of scale do not appear to be substantial in the production of infant formula. The absolute size of the firm may affect its ability, however, to advertise and influence physicians' recommendations.

One important barrier to entry is medical detailing, which is a manufacturer's practice of directly contacting hospitals and medical practitioners, giving infant formula samples and other types of support, and encouraging physicians to recommend one particular brand of formula.[9] Medical detailing is the marketing approach used by the three major infant formula manufacturers, which are owned by pharmaceutical companies. Several manufacturers mentioned the marketing importance of "discharge packs"—kits containing formula samples, cents-off coupons, company advertising, and, sometimes, toys or pacifiers. Hospitals, provided with free discharge packs from the manufacturers, give them to mothers when they leave the hospital with their babies. This action serves as an implicit endorsement of a particular brand of formula by the hospital; it makes the entry of new brands that are unfamiliar to the mother more difficult. Medical detailing may limit the ability of nonpharmaceutical companies to compete in the domestic infant formula industry.

Grocery shelf visibility is another important determinant of demand for a particular firm's product. A brand's shelf space, however, is determined by its market share. This cycle suggests that new entrants, with low or nonexistent market shares, will find it difficult to acquire the shelf space necessary to make consumers aware of their products. The use of competitive bidding by WIC agencies can help new or small firms gain market exposure. In areas where the retail distribution system is used, stores devote a relatively high proportion of their shelf space to the WIC contract brand. This increases the brand's visibility and, in turn, increases sales of the WIC contract brand to non-WIC participants.

Finally, the manner in which some WIC contracts are specified limits competition. Contracts generally require that manufacturers supply both milk-based and soy-based products. Companies that make only one or the other, like Loma Linda or Carnation, are effectively shut out of the bidding process.

[9]Medical detailing includes activities such as providing free or discounted formula and discharge packs to hospitals; donating equipment and services to hospitals (for example, isolettes, incubators, nursers, volumetric tube feeders, calendars, pens, note pads, architectural planning, and printing services); providing free samples to physicians; and providing funding for research on infant nutrition to hospitals and physicians.

Little Pressure for Price Competition Between Manufacturers

The wholesale price of infant formula increased rapidly in the 1980s. The weighted average price of infant formula produced by the three major manufacturers increased roughly 9.5 percent annually from 1979 to 1988. To put this increase in perspective, we calculated the average annual price for both the fresh whole milk industry and prescription drugs. During the same period, the average annual price increase of 9.5 percent for infant formula was substantially higher than the average annual increase in the consumer price index for fresh whole milk (approximately 2 percent) and almost as high as for prescription drugs (approximately 9.6 percent).

Manufacturers may feel little pressure to keep the price of infant formula low because many consumers (1) do not pay for the formula themselves or (2) consider other factors in addition to price when making a brand choice. About one-third of all infant formula produced in the United States is consumed by WIC participants. In areas with open market contracts, WIC mothers can obtain any WIC-approved brand of formula with their vouchers. Thus, price is not a consideration for a sizable minority of infant formula consumers. Even for non-WIC mothers, price may be only one factor, along with others—such as advice from physicians and brand familiarity—that are considered in making a brand choice.

Formula Manufacturer Views on Cost Containment

Prior to the passage of P.L. 101-147, representatives from one manufacturer told us that rebate amounts could be "about as high as they are going." The representatives added that to stay competitive in the infant formula market, manufacturers must be active participants in cost-containment initiatives. When asked why manufacturers continue to bid on WIC cost-containment contracts, representatives from another manufacturer responded, "If we don't bid, our competitors will." Manufacturers indicated that bidding on WIC contracts represents a rational business decision encouraged by competitive market forces. Of the three major formula manufacturers, representatives of two said that they consider the following factors when bidding on WIC infant formula contracts:

- impact of the results of the bid (that is, winning or losing) on the company's market share and profitability,
- competitive activity in the area based on publicly available information,
- size of the agency's infant WIC market,
- proximity of the company's production facilities to the WIC agency,
- production costs,
- available manufacturing capacity, and

- type of cost-containment approach being employed by the WIC agency.

One manufacturer reported a 41 percentage point increase in its market share in one state after winning a competitive sole source bid. In addition to sales generated by winning the sole source bid, representatives from the manufacturer stated that an increase in market share resulted from (1) spillover business in the non-WIC market, (2) increased business in hospitals within the state because of the number of WIC infants, and (3) improved shelf space in retail stores. This positive effect on market share persisted, although to a lesser extent, even after the original contract expired and a new contract was awarded to a different manufacturer.

Economic Determinants of the Adjusted Price for Infant Formula—GAO Analysis

Many factors could conceivably affect the cost of infant formula to WIC agencies: the bidding system employed, size of both the WIC and the non-WIC infant populations, and any regional cost differentials. To distinguish the separate effects that each of these factors has on the price of infant formula to WIC agencies, we employed multiple regression analysis—a standard statistical technique that quantifies the relationship between a dependent variable and a set of independent variables.

We limited our analysis to the 42 state agencies nd 14 Indian agencies that used retail rebates—the most common cost-containment approach—and provided sufficient data.[1] The adjusted price is defined as the wholesale list price for a 13- ounce can of milk-based formula minus the rebate amount. The specific variables employed in the analysis are discussed below and summarized in table III.1 (p. 30). The regression results (estimated coefficients and their standard errors) are reported in table III.2 (p. 30).

Effect of Bidding Systems on Adjusted Price

The bidding systems used by the WIC agencies can be classified into three categories: competitive sole source bids (SOLE_BID), competitive multi-source bids (MULTI_BID), and negotiated open market bids.

Economic theory suggests that manufacturers will offer higher rebates under a competitive bidding system than under a negotiated open market approach. Winning or losing a competitive bid can have a major impact on an infant formula manufacturer's market share. In addition to the sales of formula to WIC participants, sales of formula to purchasers not in the WIC program may increase as well—the so-called spillover effect.

In contrast to a competitive bid system, the open market rebate approach tends to maintain the preexisting relative market shares.[2] Offering an open market rebate will not increase a manufacturer's market share; declining to offer a rebate will not decrease it. An open market rebate appears to reduce a firm's profits since such rebates represent an additional expense without offsetting sales gains for the manufacturer.

[1] One WIC agency with an open market contract did not provide complete information on its rebate contract and was not, therefore, included in the regression analysis. Two other WIC agencies with rebate contracts used retail distribution to serve only a portion of their WIC participants: the population figures for these two agencies were adjusted accordingly.

[2] Under the preferred provider approach, participants are encouraged to buy only those brands that give rebates. Only one WIC agency used this approach.

Nonetheless, some manufacturers may prefer an open market approach to a competitive sole source approach precisely because the former maintains relative market shares. In fact, one explanation for the existence of open market rebates is that manufacturers wish to forestall WIC agency adoption of the competitive sole source approach.

Rebates under the multi-source approach may tend to be higher than open market rebates, but lower than competitive sole source rebates. The gains from winning a competitive multi-source bid may be lower than the gains from winning a sole source bid since, by definition, more than one manufacturer may win a multi-source bid. There is a cost associated with losing a multi-source bid (that is, being shut out of the WIC market), but it is impossible to lose an open market bid.

ffect of Population n Adjusted Price

We controlled for the size of the WIC infant population (WICPOP), the proportion of the eligible population served (ELIG89) in 1989, and whether the WIC program was operated by an Indian agency (INDIAN). The size of the WIC population may serve as a proxy for size of the non-WIC infant population, indicating the potential for profitable spillover business. Indian WIC agencies may receive lower rebates, in part, because the size of the non-WIC population relative to the WIC population is less than for state WIC agencies. Rebates may also be lower in areas that serve a high proportion of their eligible population — compared with those that serve a low proportion — because there is less potential for expansion. Manufacturers may also be reluctant to offer high rebates in such cases because savings not used by a WIC agency are returned to FNS and distributed to other agencies that may be served by competing firms.

eographic Cost ifferentials

WIC agencies in states where infant formula is produced may be able to obtain formula at a lower price, relative to the price paid in other states, if transportation costs affect the manufacturers' costs of providing infant formula. To account for this possibility, we included a dummy variable, equal to 1, if any of the three major infant formula manufacturers operated a production facility within the state (MFGSTATE). A set of regional dummy variables was also included to control for any geographical cost differentials that might affect the adjusted price.

Calculating the Average Adjusted Price

The adjusted price for a particular brand is calculated by subtracting the rebate amount, if any, as of June 1, 1989, from the wholesale list price for a 13-ounce can of milk-based formula.[3] We first determined the wholesale prices for each of the three major manufacturers—Ross, Mead-Johnson, and Wyeth-Ayerst—based on contract information provided by WIC directors in their questionnaire responses. In WIC areas that use the open market approach, the average adjusted price paid by the WIC agency (PRICE) was computed by averaging each firm's adjusted price, using national manufacturer market shares as weights.[4]

For competitive sole source bids, we assumed, on the basis of questionnaire responses, that the contract brand represented 95 percent of the formula purchased, with the remaining 5 percent purchased from other manufacturers. Consequently, we averaged the adjusted price of the contract brand with the average adjusted price of two noncontract brands, using the weight of 0.95 for the first and 0.05 for the second.[5]

For competitive multi-source bids, all of the formula purchased is assumed to earn a rebate. The relative national market shares of the contract manufacturers were used to compute the weighted average-adjusted price for these bids.

Regression Analysis Results

We estimated the regression model by the method of ordinary least squares. The following are shown in table III.2: the estimates of the regression coefficients, the standard error for each of the estimated coefficients, the t-statistic for the null hypothesis that the true parameter value is equal to zero, and the mean value of each variable.

An estimate is considered statistically significant if the probability is low that the true value of the coefficient is equal to 0. We chose as our criterion a significance level of 0.05; that is, we required that the

[3]Out of a total of 94 retail rebate contracts awarded, 26 had not been implemented as of June 1, 1989. For contracts awarded, but not implemented, we calculated the adjusted price using the rebate amount specified in the contract. The total number of retail rebate contracts reflects the award of multiple contracts by agencies using open market, multi-source, or preferred provider approaches.

[4]Wholesale prices for a 13-ounce can of milk-based formula and national market shares by manufacturer were Ross, $1.583, 56 percent; Mead Johnson, $1.550, 35 percent; and Wyeth-Ayerst, $1.445, 9 percent.

[5]Because one state, which uses a competitive multi-source approach, awarded only one contract, it was treated as if it used a sole source competitive approach in the calculation of adjusted price. The appropriate market shares were used to obtain the weighted average price of the noncontract brand formula.

probability of the true coefficient being 0 is no greater than 0.05. The critical t-statistic (two-tailed test), given the size of our data set, is approximately 2.0.

After controlling for the variables discussed above, the factor that had the largest impact on adjusted price is the type of bidding approach employed by the WIC agency. Competitive sole source bids produced adjusted prices that were $0.36 lower than open market adjusted prices. Competitive multi-source adjusted prices were $0.24 lower than open market adjusted prices.[6] These differences are statistically significant at the 5-percent level.

The size of the WIC population was not an important determinant; that is, on average, states with large WIC populations did not obtain formula at a lower cost than states with small WIC populations. The percentage of the eligible WIC population served did influence, statistically, the adjusted price, although the magnitude of the effect was relatively small. An increase of 10 percentage points in the proportion of the eligible population served was associated with an adjusted price that was $0.04 higher.[7]

On average, Indian WIC agencies that have retail rebate contracts pay $0.55 more for infant formula than state WIC agencies that have retail rebate contracts. The regression results indicate that part of the difference ($0.17) takes place because all of the Indian WIC agencies with retail rebate contracts had open market contracts; 50 percent of the states had competitively bid contracts (either sole source or multi-source). The fact that Indian WIC agencies serve a higher proportion of their eligible population, on average, than state WIC agencies explains an additional $0.11 of the difference.[8] The remainder ($0.27) of the difference between the adjusted price paid by Indian WIC agencies and the adjusted price paid by state WIC agencies cannot be explained by the factors we considered in our economic analysis.

[6]Although the point estimates imply that sole source competitive bids lead to lower adjusted prices than multi-source competitive bids, they are not statistically different from each other at standard significance levels.

[7]We also tried limiting the analysis to states only and, to control for the size of the non-WIC market, including the state population and the number of births in the state since 1980. These variables were not statistically significant in the regressions. When we limited our attention to programs administered by state WIC agencies, the percentage of the eligible population served was no longer statistically significant.

[8]On average, Indian WIC agencies served 72.6 percent of their eligible population; non-Indian WIC agencies served 47.8 percent.

Lastly, neither the set of regional dummy variables nor the state-manufacturing variable was an important determinant of adjusted price.

Table III.1: Definition of Variables Used in Regression Analysis

Variable	Description
SOLE_BID	Equals 1 if WIC agency uses sole source competitive bidding, 0 otherwise
MULTI_BID	Equals 1 if WIC agency uses multi-source competitive bidding (that is, "Colorado model"), 0 otherwise
WICPOP	Average monthly WIC infant population (June 1988 to May 1989) in thousands
MFGSTATE	Equals 1 if Ross, Mead Johnson, or Wyeth-Ayerst has an infant formula manufacturing facility in the state, 0 otherwise
ELIG89	Proportion of the eligible population served by the WIC agency in fiscal year 1989
INDIAN	Equals 1 if the WIC agency represents an Indian tribe, 0 otherwise
MIDWEST	Equals 1 if the WIC agency is located in the Midwest, 0 otherwise
WEST	Equals 1 if the WIC agency is located in the West, 0 otherwise
SOUTH	Equals 1 if the WIC agency is located in the South, 0 otherwise
PRICE	Weighted average adjusted contract price (wholesale price minus rebate amount) as of June 1, 1989

Table III.2: Regression Results

Variable	Parameter estimate	Standard error	T-stat	Mean
INTERCEPT	0.53	0.10	5.39	
SOLE_BID	−0.36	0.05	−7.91	0.32
MULTI_BID	−0.24	0.09	−2.85	0.05
WICPOP	−2.0E−04	−8.2E−04	−0.25	18.09
MFGSTATE	−0.01	0.07	−0.11	0.07
ELIG89	0.40	0.15	2.64	0.54
INDIAN	0.27	0.06	4.45	0.25
MIDWEST	−0.04	0.06	−0.66	0.25
WEST	0.03	0.06	0.58	0.38
SOUTH	0.01	0.06	0.12	0.21
PRICE[a]				0.69

Note: Number of observations, 56
Adjusted R-square, 0.824
F statistic, 29.67
Probability of F statistic, 0.0001

[a]PRICE, representing adjusted price, is the dependent variable.

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